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CHEMICAL EXAMINATION OF A NOSTRUM, CALLED CINCHO-QUININE.

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The relation of the pharmacist to the physician is of such a character that the pharmacist is frequently called upon to act as the adviser to the physician in framing formulas and in determining the precise conditions in which medicines may be prescribed to the best advantage of the sick. So long as such influence is exercised solely for the benefit and in the interest of the patient, the influence so exercised is proper and honorable, even if the pharmacist is thereby directly and materially the gainer; but if the pharmacist abuses his privilege and prostitutes the professional influence he may command for the primary motive of gain, he is deserving of the severest opprobrium, and ranks beneath the most impotent quack. Such being our opinion of a class of "specialists who offer gold and furnish gilded dross," we have considered it our duty to combat the specialty innovation, in so far as it is based upon secrecy of formula, and whenever unduly placed before the medical profession.

Several years ago, a preparation called "Cincho-Quinine" was thrown upon the market by Jas. R. Nichols & Co.—now Billings, Clapp & Co.—of Boston, Mass. The manner in which the attention of medical practitioners was drawn to the nostrum is too familiar to the pharmacist to require detailed mention here. Suffice it to say, that by diligent and profuse advertisement, by the representation of the manufacturers that it was an accurate alkaloidal representative of cinchona bark, by its apparent cheapness as compared to sulphate of quinia, and, undoubtedly also, by a certain medicinal value, the article has gained favor with many physicians, and is, in some localities, frequently prescribed as a substitute for sulphate of quinia. Among pharmacists, however, and especially among those who were educated to a profes-

sional standard, the nostrum was regarded with suspicion, and very shortly after its introduction it was subjected to chemical examination. We are cognizant only of two such examinations; one, made in 1870 by Mr. Wm. T. Wentzel; the other, read by Mr. Albert E. Ebert before the American Pharmaceutical Association at its meeting in 1874, from which it appears that neither of the experimenters succeeded in determining the presence of quinia. The reading of Mr. Ebert's paper before the American Pharmaceutical Association prompted the manufacturers of the nostrum to protest against its publication in the Proceedings of that body, unless such publication was complemented by certain explanations, and the certificates of several chemists (employed by the manufacturers), that the article contained quinia. The American Pharmaceutical Association having thus become involved in a controversy, the merits of which remained undecided, we, being connected with the Association, and having become interested in the question, have endeavored by the experiments detailed in the following pages to place the substance called "Cincho-Quinine" before the public on its true merits.

We used for our experiments four samples of cincho-quinine, which are severally designated in our paper as No. 1, No. 2, No. 3 and No. 4.

Sample No. 1 was purchased by E. Scheffer in March, 1874, and consisted of part of a bottle at the date of our examination.

Sample No. 2 was purchased for our examinations. It had been obtained from the manufacturer by the wholesale drug house from which we bought it, some time in May, 1874. The sealed bottle was enveloped in a circular, covered with a blue wrapper, and was labeled. The circular will be described in an appendix, as *Circular No.* 1.

Sample No. 3 was purchased by C. Lewis Diehl on the 18th of September, 1874, and consisted of part of a bottle at the date of our examination.

Sample No. 4 was also purchased for our examinations. It had been obtained from the manufacturer by the wholesale drug house from which we bought it, early in December, 1874. The sealed bottle was enveloped in a circular, covered with a blue wrapper, and was labeled. The circular will be described in the appendix as *Circular No.* 2.

SERIES OF EXPERIMENTS, I.

The physical appearance of cincho-quinine, as well as the statement of its manufacturers, "that it is composed wholly of the bark alka-

loids," rendered it obvious to us that it was obtained by precipitation from saline combination by means of an alkaline base. If, as the manufacturers claim, the article in question is composed *wholly* of the cinchona alkaloids, the task of determining the nature of the acid which had held the alkaloids in saline combination, and of the alkali with which it had been precipitated from solution, would have been a hopeless one. In other words, cincho-quinine, being *wholly* composed of "quinia, quinidia, cinchonia, cinchonidia, and certain not well determined alkaloidal principles of bark," it cannot contain sulphuric, nitric, hydrochloric or other acid; nor soda, potassa, or ammonia, either free or in saline combination. We preferred, however, to accept the evidence of our chemical experiments rather than the assertion of the manufacturers, and propose in the following to give the results of our

QUALITATIVE EXAMINATION OF CINCHO-QUININE.

for which we used the sample described as: *Sample No.* 1.

This sample possessed slight alkaline reaction; a portion, brought in contact with moist red litmus, restoring the red color to blue.

It readily dissolved in water, acidulated with hydrochloric acid, forming, practically, a clear solution. The solution, so obtained, produced with solution of chloride of barium a copious precipitate, which was insoluble in hot nitric acid.

Qualitative result No. 1.—*Cincho-quinine contains sulphuric acid in relatively large quantities.*

A second portion of cincho-quinine was digested with water for 24 hours, and the solution filtered from the undissolved portion. The solution was evaporated to dryness, and incinerated in a platinum capsule, during which process the considerable residue melted, became charred, and was, finally, entirely dissipated.

Qualitative result No. 2.—*Cincho-quinine does not contain a non-volatile base or compound.*

A third portion was treated with boiling strong alcohol, the solution filtered, and the small residue thoroughly washed with hot alcohol. The residue=*A*. The filtrate=*B*.

A.—The residue was readily soluble in water, and was neutral to test paper. Its solution was not precipitated by ammonia, but gave an abundant precipitate with chloride of barium, which was not redissolved by hot nitric acid. When a portion of the solution was heated in a test tube with solution of potassa, the vapor evolved restored the blue

color to moist red litmus paper, and produced copious fumes when a glass rod, moistened with hydrochloric acid, was subjected to its influence. Upon evaporating a portion of the solution, a crystalline residue was obtained, which, heated strongly in a platinum capsule, was completely volatilized.

Qualitative result No. 3.—*Cincho-quinine contains sulphate of ammonium.*

B.—The hot alcoholic solution deposited on cooling an abundance of crystals, which were collected on a filter. The crystals=*B* 2. The filtrate=*B* 1.

B 1.—A portion of the cold filtrate was diluted with water, acidulated with hydrochloric acid, and treated with chloride of barium, which formed an abundant precipitate of sulphate of barium. The remainder of the solution was evaporated to dryness with gentle heat. During the evaporation a white, apparently crystalline ring was formed on the sides of the capsule and near the original level of the solution. As the evaporation proceeded a second resinous ring formed further down the sides of the capsule. Finally, when the evaporation was completed, a crystalline deposit formed in the centre of the capsule. Portions of each of the ring deposits were tested with chlorine water and ammonia, but gave no indication of either quinia or quinidia. The entire residue was then dissolved in acidulated water, the solution precipitated with ammonia, then shaken with ether, and the ethereal solution evaporated. The small residue so obtained was dissolved in dilute acid, and gave, when treated with chlorine water and ammonia, a green color; with chlorine water, ferrocyanide of potassium and ammonia, a red color.

Qualitative result No. 4.—*Cincho-quinine contains either quinia, or quinidia, or both.*

B 2.—The crystals, deposited on the cooling of the hot alcoholic solution (*B*), were digested with water, transferred to a filter, and washed with water several times. The solution=*a*. The residual crystals=*b*.

a. The solution was found to contain sulphuric acid in abundance. It afforded a copious precipitate on the addition of ammonia. No color reaction was produced by either chlorine water and ammonia, or chlorine water, ferrocyanide of potassium and ammonia.

Qualitative result No. 5.—*Cincho-quinine contains sulphate of cinchonia.*

b. The crystals, which remained undissolved by digestion with water (*B* 2), were readily dissolved by dilute hydrochloric acid. The *absence* of sulphuric acid was proved by the usual test. The absence of quinia or quinidia was also proved in the same manner as in experiment *a*.

Qualitative result No. 6.—*Cincho-quinine contains cinchonia in its alkaloidal condition.*

A fourth and weighed portion of cincho-quinine was dissolved in dilute sulphuric acid, precipitated with ammonia, digested with ether, and the ethereal solution evaporated and weighed; our aim being to ascertain the proportion of, in ether, soluble alkaloids, which amounted to 4·75 per cent. of the cincho-quinine employed. We wish it to be understood, however, that this experiment was not conducted with the degree of care required for a *quantitative* experiment, the result as obtained being sufficiently accurate for a qualitative experiment, as was intended.

Qualitative result No. 7.—*Cincho-quinine contains but a small relative proportion of, in ether, soluble alkaloids.*

The ethereal residue, as above obtained, was found to contain either quinia or quinidia, or both. We dissolved a portion in dilute alcohol, containing 5 per cent. sulphuric acid, added tincture of iodine, and redissolved the bulky brown precipitate produced, by the aid of gentle heat. After standing 24 hours, the deposit which had formed was examined, and was found to consist mainly of brown iodo-sulphate of quinidia, interspersed with the characteristic green-black crystals of herapathit (iodo-sulphate of quinia).

Qualitative result No. 8.—*Cincho-quinine contains both quinia and quinidia, but the relative proportion of quinia to quinidia is very small.*

By these qualitative experiments we have proven:

1. That cincho-quinine contains sulphuric acid.

2. That this sulphuric acid is partly represented by sulphate of ammonium.

3. That the greater part of the sulphuric acid is represented by alkaloidal sulphate.

4. That cincho-quinine contains but a small percentage of quinia, either as alkaloid or as sulphate.

5. That the entire quantity of, in ether, soluble alkaloids contained in cincho-quinine does not exceed 5 per cent., and that the bulk of the, in ether, soluble alkaloid is composed of quinidia (present in the cincho-quinine, either as alkaloid or sulphate).

6. That cincho-quinine is mainly composed of cinchonia, partly as alkaloid and partly as sulphate.

7. That, therefore, cincho-quinine is not a fair nor accurate alkaloidal representative of cinchona bark.

With these results we might, under ordinary circumstances, have been satisfied as to the true nature of the nostrum. But we had set out to determine quantitatively the amount of quinia contained in it, and, therefore, only considered ourselves well prepared to make intelligently a quantitative analysis.

SERIES OF EXPERIMENTS II.

We now propose, in the following, to give the results of our

QUANTITATIVE ANALYSIS;

but, in order to state the results as concisely as possible, we deem it proper to make the following preliminary observations:

1. *The precipitates* were all obtained with as small a quantity of precipitant as was necessary to complete precipitation, and these (precipitates) were washed with as little of the washing liquid as was necessary to completely remove soluble contaminants.

2. *The drying of precipitates and residues* was conducted in a water-bath, at a temperature of 180° to 200° F., as long as they lost weight—generally for three days, and sometimes for a week; the filters containing precipitates being enclosed in tared and covered porcelain crucibles.

3. *The filtering-paper* used was the best Swedish, and the tare of the filters, as well as that of the vessels in which weighings were made, was ascertained after subjecting them to heating on the water-bath as long as they lost weight.

4. *The weighings* were made on an analytical balance, which responded to the one-tenth part of a milligram.

5. *The reagents* were all tested for their purity before we used them, and the stronger ether was that manufactured by Dr. E. R. Squibb.

6. *The cincho-quinine* used in this series of experiments, was that described as *sample No.* 2.

EXPERIMENT A.

A 1.—4·118 grams of cincho-quinine was dried; when dried it weighed 4·066 grams; it had therefore lost 0·052 grams = 1·262 per cent.

Quantitative result No. 1.—*Cincho-quinine, when dried completely, at a temperature of* 180° *to* 200° *F., lost* 1·262 *per cent.*

A 2.—5·0 grams of cincho-quinine was dissolved in water acidulated with hydrochloric acid, the solution was precipitated with ammonia, the precipitate collected on a filter, washed, dried and weighed. It weighed

4·559 grams, and had therefore lost 0·441 grams = 8·82 per cent. (*See* results *A* 4.)

Quantitative result No. 2.—*Amount of substances foreign to an alkaloidal condition of cincho-quinine* 8·820 *per cent.*

A 3.—The filtrates and washings from *A* 2 were mixed, evaporated to a small volume, acidulated with hydrochloric acid, and chloride of barium added, in slight excess. The precipitate which had formed was collected on a filter, washed, dried and weighed. The so obtained sulphate of barium weighed 0·697 grams; corresponding to 0·240 grams of sulphuric acid = 4·8 per cent., SO_3.

Quantitative result No. 3.—*Cincho-quinine contains of sulphuric acid* 4·800 *per cent.*

A 4.—The filtrate and washings from *A* 3 were concentrated to a small bulk, sulphuric acid added in slight excess, to remove the excess of barium used as chloride, the sulphate of barium was filtered off, and to the clear filtrate ammonia was added in slight excess. No precipitate of alkaloids was formed after standing for more than a week.

Result No. 4.—*The washings from the precipitated alkaloids, A* 2, *did not hold alkaloids in solution.*

Remarks.—By these experiments, *A*, we have shown, that the sample of cincho-quinine (No. 2), contained 8·820 per cent. of constituents which are foreign to its alkaloidal condition. Of this quantity, sulphuric acid constitutes a portion equal to 4·80 per cent. of the cincho-quinine, and water, driven off by the heat of the water-bath, 1·262 per cent., leaving 2·758 per cent. to be accounted for. Our qualitative experiments have shown the presence of a small quantity of ammonia as sulphate, and of a considerable quantity of sulphate of the alkaloids; and, further on, we propose to show the exact quantities of these sulphates, obtainable by a given quantity of water from each of the four samples of cincho-quinine examined. We have also found that the filtrates and washings from the precipitated alkaloids, did not contain any alkaloids in solution (*A* 4), and therefore, unhesitatingly account for the 2·758 per cent. of foreign matter, as ammonia and water of crystallization in the alkaloidal sulphates.

RECAPITULATION OF RESULTS A.

		Per cent.
1.	Amount of sulphuric acid in cincho-quinine, ...	4·800
2.	" of moisture expelled by heating to 180°–200° F., . .	1·262
3.	" of ammonia,	
4.	" of water of crystallization in alkaloidal sulphate, } . . .	2·758
	Total constituents foreign to an alkaloidal condition of cincho-quinine,	8·820

EXPERIMENTS B.

B 1.—The precipitate *A* 2 was triturated to a fine powder, and 4·513 grams of it introduced into a flask and agitated with stronger ether frequently during twenty-four hours. The contents of the flask were then transferred to a filter, the filtrate was collected in a tared beaker, and the residue on the filter washed with ether until about four fluidounces of filtrate and washings were obtained. These were allowed to evaporate, spontaneously, at first, and then on a water bath, until the residue no longer lost weight. It weighed 0·254 grams, which, calculated for the entire quantity of precipitates, *A* 2 (4·559 grams), corresponds to 0·2565 grams of, in ether, soluble alkaloids, from 5·0 grams of cincho-quinine, or 5·130 per cent.

Quantitative result No. 5.—Cincho-quinine, sample No. 2, contains of, in ether, soluble alkaloids 5·130 per cent.

REMARKS.—The ethereal solution *B* 1, during the spontaneous evaporation, deposited crystals on the sides of the beaker until about two-thirds had evaporated; after which there was no longer any crystalline formation, or deposit, until it was evaporated to complete dryness, when the bottom of the beaker was covered with a yellowish-white resino-crystalline residue.

We attempted to redissolve the entire residue with twenty-five parts of stronger ether, but found it very slowly, and with difficulty, soluble in that solvent, and consequently, abandoned the experiment. Had this residue consisted of quinia only, it would have readily dissolved in from 12 to 15 parts of stronger ether.

B 2.—The ethereal residue, *B* 1, was dissolved in 100 drops of alcohol of 60 per cent., containing 5 per cent. of sulphuric acid; tincture of iodine was added in slight excess, and the liquid heated gently, to redissolve the very copious red-brown precipitate which had been formed. The solution was then set aside for 40 hours, when a mixture of *herapathit* and of a red-brown crystalline precipitate had formed. This mixture was collected on a filter, washed with dilute alcohol, and dried. It weighed 0·067 grams. The filtrate and washings, on spontaneous evaporation, deposited a very small additional quantity of herapathit. This was carefully collected, and, together with the previously obtained and weighed precipitate, dissolved in boiling alcohol, the solution filtered, allowed to evaporate at a gentle heat to a small volume, and allowed to stand at rest for 18 to 24 hours. Well defined crystals of herapathit, exhibiting the characteristic bronze-green color, had

formed. These were collected on a filter, washed with a little dilute alcohol, dried and weighed. The so purified herapathit weighed 0·0540 grams, corresponding to 0·0305 grams of pure quinia from 4·513 grams of the precipitated alkaloids, (*A* 2), which, calculated for the entire precipitate (*A* 2) obtained, is 0·0307 grams, or 0·612 per cent. of the 5·0 grams of cincho-quinine used.

Quantitative results No. 6.—*Cincho-quinine, sample No.* 2, *contains of pure quinia* 0·612 *per cent.*

B 3.—The filtrate and washings—*B* 2—from which both the impure and pure herapathit had been obtained, were mixed, decolorized with alcoholic solution of sulphurous acid, and evaporated to dryness. The residue was dissolved in dilute hydrochloric acid, precipitated by ammonia, the precipitate washed and dried. This precipitate was subjected to the following qualitative examination:

A portion was dissolved in dilute sulphuric acid, a little acetic acid was added, and then tincture of iodine. The brick-red deposit formed was redissolved by the aid of gentle heat, and the mixture was then allowed to stand over night. Next morning a brick-red crystalline deposit had formed, which was entirely free from the green-black crystals of herapathit.

The remainder was dissolved in dilute hydrochloric acid, and the solution was treated with chlorine water and ammonia, which produced a green color, and with chlorine water, ferrocyanide of potassium, and ammonia, which produced a red color. But in neither instance was the color as intense as when corresponding quantities of sulphate of quinia or of sulphate of quinidia were subjected to the same tests. This difference we ascribe to the presence of cinchonia, and, possibly, also to cinchonidia, the ether dissolving portions of both of these alkaloids, if present. We therefore unhesitatingly arrive at the following conclusions:

Result No. 7.—*The, in ether, soluble portion of cincho-quinine is composed,*

1, *of a small proportion of quinia;*
2, *of a large proportion of quinidia;*
3, *of a small proportion of cinchonia;*
4, (*probably*) *of a small proportion of cinchonidia.*

REMARKS.—We wish it to be positively understood that we intend to convey, by what we have said in the above relating to *Experiments B*, that we have determined *quantitatively* only the, in ether, soluble

alkaloids in cincho-quinine (Sample No. 2), and the quinia therein contained.

EXPERIMENTS C.

C 1.—A portion of the residue remaining from the precipitate *A* 2 after its exhaustion with stronger ether, as detailed in Experiment *B* 1, was dissolved in water acidulated with hydrochloric acid, precipitated with ammonia, and the mixture was then shaken with stronger ether. The ethereal solution yielded on evaporation a small residue, which, when dissolved in dilute hydrochloric acid, and treated with chlorine water and ammonia, gave no color-reaction whatever.

Result No. 8.—*The precipitate A* 2, *after exhaustion with stronger ether, as detailed in B* 1, *no longer contained either quinia or quinidia.*

C 2.—0·640 grams of the same residue was dissolved in dilute sulphuric acid, the solution was carefully neutralized with potassa, and a carefully neutralized solution of tartrate of potassium and sodium was added (in the proportion of 0·522 parts to 1·000 parts of alkaloid residue). The mixture was then evaporated to 40 times the weight of the alkaloid residue employed, and allowed to stand four days. No crystalline (or other) deposit had formed.

Result No. 9.—*The residue remaining after the exhaustion of the precipitate A* 2 *with ether contains no cinchonidia, and is therefore composed of cinchonia only.*

REMARKS.—The method adopted by us for the separation of cinchonidia from cinchonia is that recommended by De Vrij (*vide* "Jahresbericht der Pharmacie," 1873). The fact, that we have failed to obtain cinchonidia in the residue of the precipitate *A* 2 after its exhaustion with ether, does not decide its absence in cincho-quinine, as it may have been taken up by the ether, and would then be contained in the ethereal residue *B* 1. In that event, however, it can only be present in very small proportion.

SERIES OF EXPERIMENTS, III.

These experiments were made with the four samples of cincho-quinine, described in the beginning of our paper, and were both qualitative and quantitative. The large quantity of sulphuric acid found in sample No. 2 made it evident to us, that this acid existed mainly in alkaloidal combination. If, therefore, any considerable portion of cinchonia was held in such combination, the sulphate of cinchonia, being soluble in about 50 parts of cold water, would readily be taken up by digesting cincho-quinine in cold water, and its presence as such proved. We

also wished to determine the amounts of, in ether, soluble alkaloids contained in samples No. 1, No. 3, and No. 4, and to determine the amount of quinia in one or more of these samples.

EXPERIMENTS D.

D 1.—2·0 grams of each of the samples of cincho-quinine, No. 1, No. 2, No. 3, and No. 4, were tested as follows: The sample was triturated to a fine powder, and agitated in a flask, occasionally, for 24 hours with 60 grams of water; the contents of the flask were then poured on a filter, and the residue on the filter washed with sufficient water to make the weight of the filtrate up to 60 grams. The filtrate was evaporated in a tared capsule and heated until it no longer lost weight, at a temperature of about 180°F. The following table shows our results:

2 GRAMS CINCHO-QUININE.	WEIGHT OF RESIDUE FROM AQUEOUS SOLUTION.	PERCENTAGE
Sample No. 1.	0·255 grams.	12.75 per cent.
Sample No. 2.	0·235 grams.	11·75 per cent.
Sample No. 3.	0·350 grams.	17·70 per cent.
Sample No. 4.	0·440 grams.	22·00 per cent.

These residues consisted mainly of short, prismatic crystals, and were perfectly white. We subjected the residue from sample No. 4 to the following qualitative examination:

D 2.—The residue (from sample No. 4) was digested with 30 grams of cold water for 24 hours, and the solution was then filtered from the undissolved portion. The solution=*a*. The undissolved portion=*b*.

a. The solution (*a*) was found to contain sulphuric acid, by the usual test. Upon the addition of ammonia, an abundant alkaloidal precipitate was produced. The addition of chlorine water, followed by ammonia, gave no color reaction.

Result of a.—The cold aqueous solution *a*, is composed of sulphate of cinchonia (and, perhaps, sulphate of cinchonidia).

b. The undissolved portion *b*, was dissolved in a little water by the aid of hydrochloric acid. The solution gave abundant evidence of sulphuric acid and of alkaloid, by the tests heretofore used. It gave a

faint green color with chlorine water and ammonia, and a faint red color, with chlorine water, ferrocyanide of potassium and ammonia.

Result of b.—Traces of quinia, or quinidia, or both, are contained in the residue *b*.

RECAPITULATION OF RESULTS D.

The various samples of cincho-quinine examined by us, yield a considerable percentage to cold water. The solutions yield upon evaporation white, crystalline residues, which, as proven by experiment D 2, upon the residue from sample No. 4, (which had yielded to water 22 per cent. of its components), are composed mainly of sulphate of cinchonia, and contains only traces of quinia, or quinidia, or both, probably as sulphates.

EXPERIMENTS E.

E 1.—2·0 grams each, of samples No. 1, No. 3, and No. 4, were severally dissolved in acidulated water, the solutions precipitated by ammonia, the precipitates collected, washed, dried, and shaken, occasionally for 24 hours, with 1¼ fluidounce of strong ether; the filters, carefully torn into shreds, being introduced into the flasks, along with the finely powdered precipitates. The contents of the flasks were finally thrown on a filter, and the residue in the filters washed with sufficient stronger ether to make each filtrate measure 1½ fluidounces. These filtrates were evaporated in tared beakers, first spontaneously, and afterwards, until completely dry, on a water bath. The following table, in which we include the result obtained with the sample No. 2, as detailed in our experiment *B* 1, will show the results of our experiment *E* 1:

CINCHO-QUININE.	QUANTITY USED.	AMOUNT OF RESIDUE FROM ETHEREAL SOLUTION.	PERCENTAGE.
Sample No. 1.	2 grams.	0·098 grams.	4·90 per cent.
Sample No. 2.	5 grams.	0·256 grams.	5·13 per cent.
Sample No. 3.	2 grams.	0·081 grams.	4·05 per cent.
Sample No. 4.	2 grams.	0·100 grams.	5·00 per cent.

In the ethereal residues of samples No. 1 and No. 4, we concluded to determine the quinia by a method, which is based on the relative solubility of the alkaloids, quinia and quinidia, in water, and which seemed to us to lead to the most satisfactory results. If we digest a mixture of quinia and quinidia on a water bath with water, and allow

the mixture to cool, the solution formed will be saturated for both alkaloids, if both have been used in excess. If, however, one of the alkaloids is present in smaller quantity than the water is capable of holding in solution, such quantity, if unknown, may be ascertained by evaporating the aqueous solution to dryness, weighing the product obtained, and deducting from this product the amount of that alkaloid which was held in saturated solution.

For example: We have a substance, *A*, which requires 100 parts of water for complete solution, and we have a substance, *B*, which requires 10 parts of water for complete solution. We have a mixture of these two substances, and wish to ascertain the proportions of admixture. We apply the solvent test as follows: We take, say 10 parts of the mixture, digest it with 100 parts of water, filter the solution, and evaporate it. We obtain 5 parts of product. Had the substance consisted of *A* alone, we should have obtained but 1 part of product; had it contained of *B* alone, or contained but one-tenth of its weight of *A*, the entire substance would have been dissolved, and we would have obtained 10 parts of product. But we have obtained 5 parts, and consequently have obtained a saturated solution of the substance *A*, containing all of the substance *B* that had been contained in the 10 parts of mixture. The product was consequently composed of 1 part of the substance *A* and 4 parts of the substance *B*; and the mixture tested was composed of 6 parts of *A* and 4 parts of *B*.

We have been thus explicit in order that our method of determining the quinia in the ethereal residue of No. 1 and No. 4 may be clearly understood; and it only remains now to give some consideration to the relative solubility of the two alkaloids in cold water:

1. *Quinia* is soluble in 364 parts of cold water, *Duflos*, *vide*, "Gmelin's Handbuch der Chemie," vol. 7, part 2, page 1697; in 480 parts, *Abl*, *Ibid*; in 400 parts, *vide*, "U. S. Dispensatory," 13th Ed., p. 297; in about 400 parts, *vide*, "Pereira's Materia Medica," abridged Ed., 1872; in 350 parts, *vide*, "Gottlieb's Chemie," Ed. 1869, vol. 2, p. 443.

2. *Quinidia* is soluble in 1500 parts of cold water, *Van Heiningen*, *De Vrij*, *vide*, "Gmelin's Handbuch der Chemie," vol. 7, part 2, p. 1720; in 2580 parts, *Leers*, *vide*, "U. S. Dispensatory" and "Pereira's Materia Medica;" in 2000 parts, *O. Hesse*, *vide*, "Jahresbericht der Pharmacie," 1868, p. 294; in 1500 parts, *vide*, "Gottlieb's Chemie," Ed., 1869, vol. 2, p. 449.

O. Hesse, who has proposed that quinidia be called *cinchonia*, states, in "Jahresbericht der Pharmacie," 1873, p. 94, that the quinidia of *Leers* is really *cinchonidia*. Dr. Wood, in the "United States Dispensatory," remarks that quinidia must always vary in its solubility, according to the amount of cinchonidia it contains. We have therefore paid no regard to the authority giving its solubility in 2580 parts of water, and have adopted as the standard for our experiments the authority of *Van Heiningen* and *De Vrij*, giving the solubility of quinidia in 1500 parts of water, at ordinary temperature. For quinia we have adopted the authority of the "United States Dispensatory" and "Pereira's Materia Medica," according to which quinia is soluble in 400 parts of water, at ordinary temperature.

E 2.—The ethereal residue from sample No. 1 was digested, in the beaker in which it had been evaporated, with 70 grams of water, on the water-bath, for twelve hours, the weight being kept up to 70 grams, as near as possible, by the occasional addition of water. The beaker was then removed from the water-bath, the original weight carefully adjusted, and was allowed to cool and to stand over night. The cold saturated solution was filtered, evaporated to complete dryness, and the residue weighed. It weighed 0·0600 grams.

1500 grams of water dissolving 1·0 gram of quinidia, 70 grams of water will dissolve 0·0466 grams of quinidia, which, deducted from 0·0600 grams, leaves 0·0134 grams, the amount of quinia contained in the ethereal residue, or 0·670 per cent. of the cincho-quinine, Sample No. 1.

E 3.—The ethereal residue from Sample No. 4 was treated with 40 grams of water, precisely as that of Sample No. 1 had been treated with 70 grams, with the following result:

The residue weighed 0·0370 grams; 40 grams of water had dissolved 0·0266 grams of quinidia, which, deducted from the gross residue, leave 0·0104 grams of quinia, or 0·52 per cent. of the cincho-quinine, Sample No. 4.

E 4.—It remained now only to prove the presence of quinidia in the aqueous extractions of the ethereal residues. We accordingly dissolved these residues in small quantities of acidulated water, and applied to them the following tests:

1. Chlorine water, followed by ammonia, produced a decided green precipitate, which, according to *Herapath* (*vide* "Gmelin's Handbuch

der Chemie," vol. 7, part 2, p. 1720), is distinctive of quinidia from quinia in concentrated solutions.

2. Chlorine water, followed by ferrocyanide of potassium, and then ammonia, produced a dirty brownish-red precipitate, which, according to *Schwarzer* (*vide* "Gmelin's Handbuch der Chemie," vol 7, part 2, p. 1720), is distinctive of quinidia from quinia in concentrated solutions.

3. The addition of tincture of iodine to their solution in dilute alcohol containing excess of sulphuric acid, produced an orange-brown precipitate, which, when redissolved by gentle heat, and allowed to deposit by gradual cooling, was found to consist mainly of a voluminous orange-brown precipitate, interspersed with a few black crystals of herapathit.

Result E.—By our experiments E, we have proved that there is no very appreciable difference in the quantities of, in ether, soluble alkaloids and of quinia contained in the various samples of cincho-quinine examined.

CONCLUSION.

The results of the three series of experiments—qualitative and quantitative—may be summed up in the following:

1. Cincho-quinine is composed mainly of cinchonia, a considerable portion of which is in combination with sulphuric acid, and is, therefore, sulphate of cinchonia.

2. It contains less than 1 (one) per cent. of the alkaloid quinia, which exists either in alkaloid or as sulphate.

3. It contains less than 5 (five) per cent. of the alkaloid quinidia, which exists either as alkaloid, or as sulphate.

4. If it contains any cinchonidia at all, this can be present only in very small quantities; since the residue, remaining after exhausting precipitated cincho-quinine with ether, did not contain it, and it could therefore have been contained only in the ethereal extraction, in which we did not search for it.

5. It contains traces of sulphate of ammonium, and is therefore precipitated from combination with sulphuric acid, by ammonia.

6. It is not an alkaloidal representative of cinchona bark.

Finally, we propose, in the following, to correct some statements made in the circular, described in the appendix to this paper, and to correct some impressions that the authors of these circulars evidently intend to convey:

1. In their circular (described as No. 1) the following statement is made:

"In one hundred ounces of good yellow bark, we obtain about two and three-fourths ounces of quinia and two ounces of cinchonia, with variable amounts of the other principles, but less than the two named."

We answer to this, that cincho-quinine is not a representative of such a bark; that, to the contrary, it consists mainly of cinchonia and its sulphate, and that it contains less than 1 (one) per cent. of quinia.

2. In their circular (described as No. 1) the manufacturers state:

"CINCHO-QUININE holds *all* the important constituents of bark in their alkaloidal conditions. It contains no *sulphate of cinchonine* or *sulphate of quinine*, but *cinchonine*, *quinine*, *quinidine*, etc., without acid combinations. It contains no substances but those found naturally existing in bark."

In their circular (described as No. 2) the phraseology has been changed, but the statement remains the same, as will be seen from the following quotation:

"CINCHO-QUININE holds all the important constituents of bark in their alkaloidal conditions. It contains no sulphate of cinchonidine, quinidine or quinine, but the pure alkaloids cinchonidine, quinidine, cinchonine, quinine, etc., without acid combinations. It contains no substances but those found naturally existing in bark."

To these statements we answer:

1. Cincho-quinine contains sulphuric acid and sulphate of ammonium, and, consequently, does contain substances not found naturally existing in cinchona-bark.

2. Cincho-quinine does contain a portion of alkaloids in acid combination, chief among which is sulphate of cinchonia.

Louisville, Ky., March 15th, 1875.

APPENDIX.

Circular No. 1 was found inside the blue wrapper and enveloping our sample of cincho-quinine No. 2. It consists of two large pages, each containing three columns of printed matter. The centre column of the first page contains the cut of a sealed bottle of cincho-quinine. This page contains, besides extracts from letters, formulas and methods of using cincho-quinine, the following:

"CINCHO-QUININE

holds *all* the important constituents of bark in their alkaloidal conditions. It contains no *sulphate of cinchonine* or *sulphate of quinine*, but *cinchonine*, *quinine*, *quinidine*, etc., without acid combinations. It contains no substances but those found naturally existing in bark.

"Its cost is but little more than *half* that of sulphate of quinine, and it is pronounced equally efficient by a large number of distinguished physicians in all parts of the country. It has but a slight bitter taste."

On the reverse page is printed, besides about a column and a half of letters, the following:

"WHAT IS CINCHO-QUININE?—This question is often asked by physicians who have not been made acquainted with the nature of this important agent, and therefore we republish the following article, which appeared in the JOURNAL in June, 1869, and which presents in a clear and explicit manner its nature and uses:

"The chemical manipulation of the Cinchona or Peruvian barks reveals the presence in them of quite a number of most remarkable, complex bodies. No vegetable production, except the poppy, affords such a marvellous combination of valuable medicinal principles as the *loxa* and *calisaya* barks, and no substances have been studied with greater care or more intense interest by chemists. Nothing short of the subtle chemical forces controlled by the Infinite One could construct from the elements of the earth and air a bitter principle like quinia, or those other agents associated in bark, so closely allied to it physically and chemically. A handful of the finely comminuted fibres of the yellow bark, which resembles physically a dozen other varieties, is made to yield by the chemist, when treated with aqueous and alcoholic liquids and acids, a dark, bitter solution, unattractive in taste and appearance. If the process is skillfully conducted, or exhaustive in its results, there remains, besides the solution, a portion of woody fibre, inert and almost tasteless. It holds considerable coloring and some waxy matter, together with a little tannin; but the active chemical or medicinal principles have been removed, and are held in the dark liquid. The exhausted bark is not entirely worthless, for it may be dried and used as fuel. But what of the dark liquid? From this the chemist obtains, besides other substances, a portion of beautiful, white, silky crystals; not wholly of one distinct kind, but of several, all of which possess about equal chemical and therapeutical importance. No wonder it seems to the uninitiated in chemical manipulation a difficult work to perform. It is, however, quite easy to the thoroughly instructed. The first principle isolated may be the quinia. This is not held in the bark in its naked alkaloidal condition, but locked up, in the form of a salt, with another principle called *kinic acid*. In the bark it is *kinate of quinine*. We isolate the quinia, tear it from its embrace with kinic acid, throw that away, force it into a kind of matrimonial alliance with sulphuric acid, and in this condition of *sulphate of quinia*, use it as a medicine. This kinic acid marries into several other families resident in the bark, prominent among which are *cinchonia*, *cinchonidia*, *quinidia*, etc. Precisely how many of these alkaloidal principles the different kinds of barks contain, is unknown; but it is safe to assume that there are as many as four others which, although not distinctly pointed out, are tolerably well recognized. These *kinates* are all *kindred* in nature, and all labor to the same end, when isolated and set to work as therapeutical agents in the human system.

"In one hundred ounces of good yellow bark, we obtain about two and three-fourths ounces of quinia, and two ounces of cinchonia, with variable amounts of the other principles, but less than the two named. It is to be regretted that we cannot remove the different families of kinates from the bark in their natural state of saline combination. It seems reasonable to suppose their action upon the system would be more salutary than in other forms. It is easy to isolate the kinic acid, and having the alkaloids, the kinates of quinia, cinchonia, etc., can be re-formed; but in

these chemical changes so much disturbance to natural organic combinations is made, that, practically, we realize no marked advantages. It seems unnatural to force a natural alkaloidal base out of its association with an organic acid, and recombine it with a mineral acid. This we do in the preparation of the sulphate of quinia. However, as it has served so good a purpose for so many years, it is not best to quarrel with the theory.

"All the alkaloids of bark possess about equal febrifuge and tonic properties, when isolated and administered in that condition. This has been proved over and over again by all competent chemists and physicians, from Drs. Gomez, Duncan, Pelletier, Caventou, down to the time of Liebig's researches, a quarter of a century ago, and from that time to the present by a hundred careful chemical and medical observers.

"How the one alkaloid, quinia, came to supersede the others, and drive them into the background, is easily undrstood, when we remember that it was about the first that was distinctly eliminated, studied, and experimented with; and the *éclat* it acquired caused everything else to be neglected. The natural bark, holding all the alkaloids, the quinia, cinchonia, quinidia, etc., has always been observed to produce more efficient and prompt results, both as a tonic and febrifuge, than the quinia, or either of the other principles in themselves; but holding also, as it does, tannin, gum, starch, fibrine, and coloring matter, all of which are medicinally interfering or inert, its use is rendered inconvenient and inadmissible in many cases. Besides, it is apt to produce disturbance of the gastric functions of an unpleasant character. Acting upon the idea that the natural alkaloidal principles of bark, in their simple, unchanged condition, separated from the gross, woody, and other matters, would better subserve all therapeutical ends than the barks themselves, or *any one* of the alkaloids separately employed, Cincho-Quinine has been prepared.

"Cincho-Quinine contains no external agents; as sugar, licorice, starch, magnesia, etc. *It is wholly composed of the bark alkaloids*; 1st, quinia; 2d, cinchonia; 3d, quinidia; 4th, cinchonidia; 5th, other alkaloidal principles present in barks, which have not been distinctly isolated, and the precise nature of which are not well understood. In the beautiful white amorphous scales of Cincho-Quinine, the whole of the active febrifuge and tonic principles of the cinchonia barks are secured without the inert, bulky lignin, gum, etc. It is believed to have these advantages over sulphate of quinine:

"1st. It exerts the full therapeutic influence of sulphate of quinine, in the same doses, without oppressing the stomach or creating nausea. It does not produce cerebral distress, as sulphate of quinine is apt to do, and in the large number of cases in which it has been tried, it has been found to produce much less constitutional disturbance.

"2d. *It has the great advantage of being nearly tasteless.* The bitter is very slight and not unpleasant to the most sensitive, delicate woman or child.

"3d. It is less costly than sulphate of quinine. Like the sulphate of quinine, the price will fluctuate with the rise and fall of barks, but it will always be less than the lowest market price of that salt.

"4th. It meets indications not met by that salt."

Circular No. 2 was found inside of the blue wrapper and enveloping

our sample of cincho-quinine No. 4. It resembled circular No. 1 in its general appearance, size, etc.; but, on its second page, contained only extracts from letters, while the first page contained, besides extracts from letters, the illustration of a bottle of cincho-quinine, etc., the following:

"CINCHO-QUININE holds all the important constituents of bark in their alkaloidal conditions. It contains no sulphate of cinchonidine, quinidine or quinine, but the pure alkaloids cinchonidine, quinidine, cinchonine, quinine, etc., without acid combinations. It contains no substances but those found naturally existing in bark.

"CINCHO-QUININE is believed to have these advantages over sulphate of quinine:

"1st. It exerts the full therapeutic influence of sulphate of quinine, in the same doses, without oppressing the stomach or creating nausea. *It does not produce cerebral distress*, as sulphate of quinine is apt to do, and in the large number of cases in which it has been tried, it has been found to produce much less constitutional disturbance.

"2d. *It has the great advantage of being nearly tasteless.* The bitter is very slight, and not unpleasant to the most sensitive, delicate woman or child.

"3d. *It is less costly* than sulphate of quinine. Like the sulphate of quinine, the price will fluctuate with the rise and fall of barks, but it will always be less than the lowest market price of that salt.

"We now supply sugar-coated cincho-quinine pills of three sizes, namely, 1 grain, 2 grains and 3 grains, in such quantities as are wanted. They are placed in vials holding 100 each. The price is about one-half that of quinine pills. Dose the same."

EXAMINATION OF QUINIA PILLS.

BY HENRY TRIMBLE.

(*Read at the Pharmaceutical Meeting, March 16th.*)

Having recently met with some spurious quinia pills in the market of this city, I was induced, at the suggestion of some of my friends, to make an examination of several samples from different manufacturers and dealers. The results, as given below, strongly indicate that, in our present questionable practice of allowing the wholesale manufacturer to prepare those articles which should, properly, be made in the laboratory of the individual pharmacist, we must exercise the most scrupulous care to guard against impositions which are sure to be attempted on the profession and the community at large. Seven samples were obtained and examined, six of them being from prominent manufacturers of this city.

The process followed was to dissolve that number of pills which represented five grains of sulphate of quinia in about a fluidrachm of water, acidulated with a few drops of dilute sulphuric acid. From this the quinia

was precipitated by water of ammonia, and the whole agitated successively with small quantities of ether, which were removed each time by a pipette to a weighed watch-glass. On evaporation, the quinia was left as a gummy mass, which was dried at a moderate temperature and weighed, so that the amount of crystallized sulphate could be calculated.

Five of the samples examined yielded so near the full amount of quinia claimed for them that there can be no question as to the honesty of their manufacture. The sixth showed an evident deficiency, giving only about 70 per cent. of the quantity represented.

The seventh has rather a peculiar history, which probably some readers of this Journal are acquainted with, as it was referred to recently in one of the Pharmaceutical meetings.

There has been an article of late extensively introduced and sold in this country under the name of "French quinine," a great deal of which is nothing more than muriate of cinchonia. A large lot of this so-called quinia was sold by a New York firm to a well-known manufacturer in Cincinnati, who, having made up a very large lot of one-grain sugar-coated pills from it, discovered the fraud and returned the whole of it in that form. These pills were next bartered off to a firm in Easton, Pennsylvania, who disposed of them to one or more wholesale drug houses of this city.

One hundred pills, labeled "Quinia Pills, 1 Gr.," were purchased from one of these last firms, with the information that they had been manufactured in Cincinnati and obtained by way of Easton, as above mentioned.

This placed the correctness of their origin beyond a doubt, and when they were examined and found to contain nothing but muriate of cinchonia, with a little quinidia, the chain of evidence was complete. When the solution was examined under the microscope with sulphocyanide of potassium, it gave the characteristic crystals of sulphocyanide of cinchonia. A few quinidia crystals were also observed, but no quinia. There can be little doubt that the several parties were fully aware of the composition of these pills, and the fact, that they continue to sell them to the trade and the public, is humiliating to every conscientious pharmacist, as well as disgraceful to those knowingly dealing in them.

The use of sugar-coated pills, although very extensive, has many evident disadvantages. A very prominent one is that of their insolubility. Several of the samples examined were very difficult to dissolve,

even the last particles going into solution very slowly, and only with the prolonged application of heat. Two of the samples, however, deserve credit for the readiness with which they dissolved at a moderate temperature. The only remedy for the objections to these pills, as well as other pharmaceutical products obtained from manufacturers, is in the persistent vigilance of the pharmacist, so as to guard carefully against impositions of this character.

When the products of the manufacturer come to be more frequently and critically examined, a great step will be gained for the advancement and elevation of our profession; thus bringing it nearer that perfect standard, which is of such vital importance.

PREPARATION OF MONOBROMATED CAMPHOR.

BY J. U. LLOYD.

Into a half gallon tubulated retort introduce fourteen avoirdupois ounces of powdered camphor, and pour upon it by fractions eight avoirdupois ounces of bromine—agitating after each addition, then add ten fluidounces of warm distilled water, and place the retort upon a sand-bath, allowing the neck of the retort to project into a flue or the open air, that the hydrobromic acid which forms may escape. Now apply heat until the liquid within the retort boils, and continue the boiling until the water is about driven off—to accomplish this will require nearly two hours—and then the contents of the retort will be of a deep amber color, almost transparent; the ebullition will be attended with violent splashing and bumping. The heat must now be discontinued and the retort allowed to cool somewhat, when its contents are poured into a dish and agitated with sixteen fluidounces of warm alcohol, and allowed to remain about twelve hours in a cool place to crystallize. The mass of fine crystals are now to be separated from the liquid by filtration, and purified by dissolving them in sixteen ounces of hot alcohol, and recrystallizing, which operation must be repeated if they are still colored.

Cincinnati, Ohio, March, 1875.

OFFICIAL AND OFFICINAL.

BY ADOLPH W. MILLER, M. D. PH. D.

(*Read at the Pharmaceutical Meeting, March 16th.*)

"The Pharmacopœia and all in it are official (*office*, Fr. from L. *officium*, an office). There are many things which in pharmacy are

officinal (Fr. from L. *officina*, a shop) but not official. To restrict the word *officinal* to the contents of a pharmacist's shop, and to that portion of the contents which is pharmacopœial, is radically wrong, and should be avoided. An *official* formula is one given under authority. An *officinal* formula is one made in obedience to the customary usage of the shop (*officina*). To state that any preparation under the sanction of the Pharmacopœia is officinal, is a misapprehension of the word."—BROUGH —Note to "Attfield's Chemistry," 5th ed., p. 25.

The question of adopting the words official and officinal as defined above was, at the last meeting, referred to me for examination, according to the Minutes of our worthy Registrar.

With all due deference to the authority of Prof. Attfield, I regret that my investigation of this subject does not lead me to his conclusions. The chief arguments against the introduction of the innovation that occurred to me, are the following:

1st. The difference in the meaning of the two words is conventional rather than radical, as they are both derived from the same root, namely, *opus*, work, and *facio*, to do or make. The distinction is, therefore, purely arbitrary, necessitating a definition in each case. The similarity of these words is, in fact, so great, that it is likely to lead to their constant confusion.

2d. The term *unofficinal* has by usage become well established in this country, and its signification is thoroughly understood by all pharmacists. If we retain officinal in the sense in which we have been accustomed to use it, unofficinal will continue to designate definitely and unequivocally those drugs and preparations that are not recognized by the Pharmacopœia. But if we adopt *official*, then the word officinal will of necessity mean precisely that which we now call unofficinal. Our Committee on unofficinal formulas will advance in title to one on officinal formulas. Endless confusion must result for years to come from such a mingling and substitution of terms, so that it might prove to be the wisest course to abandon the use of both words entirely.

3d. Both terms, or their equivalents, exist in German, French, Spanish, Swedish and other continental languages. To the best of my knowledge, officinal is, in every instance, applied in the American acceptation, without having so far given offence to the scholars of those nations.

4th. The word officinal as used by us at present agrees with our Pharmacopœia, and does not conflict with our standard dictionaries,

which do not as yet give Prof. Attfield's definition of *official.* In view of the very great inconveniences of changes in terminology, I question the propriety of altering the meaning of these words, unless it be for more cogent and convincing reasons than are urged in the present case.

5th. With the most diligent inquiry, I fail to see any advantage whatsoever that is to be derived from the introduction of the new terms, which certainly do not convey such clear and definite ideas to the mind as officinal and unofficinal, the latter expressing positive negation.

6th. I fail to understand the necessity of obediently following every change of nomenclature in chemistry and pharmacy made in England, as the number of English pharmacists in this country is insignificant in comparison to those of other European nationalities. We have signified our readiness to adopt *disodic hydric orthophosphate* and the like, but why this latest infliction? In the present case, Prof. Attfield does not appear to have even succeeded in establishing the innovation in his own country. Flückiger and Hanbury in their "Pharmacographia" seem studiously to avoid both words, constantly substituting for them some other expression; such as, it is *recognized* by the Pharmacopœia, &c.

My conclusion, is therefore, that the definitions of the terms official and officinal, as given above, are hypercritical, uncalled for and unnecessary; that the introduction of *official* presents no advantage, but, on the contrary, that it cannot fail to prove a source of infinite trouble, vexatious annoyance and interminable confusion.

Having submitted the above to Prof. Robert E. Rogers, of the University of Pennsylvania, I have been authorized to express his entire accordance with my views on the subject. Dr. Rogers strongly deprecates the introduction of *official*, denouncing it as a mere affectation. Prof. Joseph Carson, for many years editor of this Journal, expressed himself even more forcibly than Dr. Rogers. He severely condemns the proposition, and protests against it.

As Mr. Hans M. Wilder gave origin to the discussion of this matter at the last meeting, I have also conferred with him concerning it. After due deliberation he advises me that he agrees entirely with me in the uselessness of the change, stating that he called attention to the point as a mere matter of interest. He believes the definitions as given in his paper to be theoretically correct, a fact that I am quite willing to admit, but he regards the use of the words in that sense as inexpedient in practice.

Philadelphia, March 13th, 1875.

REMARKS ON ORTHOGRAPHY.

(*Read at the Pharmaceutical Meeting, March 16th.*)

BALTIMORE, MD., March 13th, 1875.

Editor American Journal of Pharmacy:

DEAR SIR,—I have read, with pleasure, the "Notes on Pronunciation and Orthography," by Dr. A. W. Miller, in the recent number of the "American Journal of Pharmacy," but am surprised that he omits to call attention to some most common and glaring errors constantly fallen into by pharmacists as well as by the public, one of which he, no doubt thoughtlessly, commits himself, or your compositor commits for him, as it is hardly probable that one so well informed would be ignorant upon so simple a subject; I refer to the use of the plural *s* in Glauber's salt*s*, at the bottom of page 103. This and like errors are constantly being committed in writing Epsom salt*s* and Rochelle salt*s* instead of salt, syrup of squill*s* for squill, spirit*s* of wine, spirit*s* of hartshorne, spirit*s* of nitre, spirit*s* of turpentine, &c., &c., instead of spirit; cre*o*sote or kreosote for creasote, aniseed for anise seeds, flour of sulphur or flour sulphur for flowers of sulphur, &c., &c.

These errors are sometimes the result of ignorance, but frequently are continued in use by those who know better, merely because it is customary to see them so written. Not long since I called the attention of one of our printers to some of the above-named errors in a lot of labels he was preparing for a pharmacist of some standing in our city. He said I had mentioned the matter to him before, and he had satisfied himself since that the labels were incorrect, but his customers would have them so because they had always so seen them printed, and people expected to find them so. Arguments, we know, are thrown away upon such persons. Dr. Miller is perfectly correct in suggesting that the general public, with perfect propriety, looks up to the apoth ecary as an authority in such matters. It is therefore very important that he should be accurate in the use of his language, so as to properly inform those who are not in positions to be posted.

I was much amused, not long since, at the sad perplexity of a young lady who purchased a package of Rochelle salt at my store. She did not notice the label until she reached home. She returned, and, with considerable agitation, asked if I had given her the right article. I answered yes, and asked if the package was not labelled correctly. She said she didn't know, the last she purchased was from my neighbor, Mr. ———. His was labelled Rochelle salt*s*, while mine was simply

Rochelle salt, and she didn't know but mine might mean one salt, and his two or more kinds mixed together. I could satisfy her only by exposing the error of my neighbor.

In conclusion, I would respectfully suggest, also, the propriety on the part of pharmacists of at once dropping out of use all such obsolete labels as Mur. Tinct. of Iron, or Tinct. of Mur. Iron; Sup. Carb. Soda, Super Carb. Soda, and Sub Carb. Soda; all of which are still frequently used, with others equally incorrect and behind the times. With reference to these last mentioned, I have, for years, had my labels printed "Tincture of Chloride of Iron," and "Bicarbonate of Soda," and find no difficulty in making the exceptional cases understand that they are the more correct labels. E. E.

NOTE ON THIS COMMUNICATION.

The reading of the above paper at our pharmaceutical meeting afforded me a genuine pleasure, as it proved to me that even if the article referred to has been productive of no other good, it has at least succeeded in awakening a greater degree of interest on the subject of orthography. Regarding the phrase Glauber's salt, I am quite willing to admit that, for the sake of uniformity in nomenclature, this may be the preferable form, but in view of the abundance of authority sanctioning the expression Glauber's salts, I cannot concede this to be as yet either incorrect or obsolete. Thus, "Dunglison's Medical Dictionary," which is the highest authority in the language in its special field, gives both Gauber's salts and Epsom salts in this so-called plural form. "Wilson's Chemistry," which has been lately revised and adapted to the new nomenclature, speaks of Epsom salts. "Hartshorne's Conspectus of the Medical Sciences" enumerates Epsom salts and Glauber salts among the saline cathartics. Thomas Wright's "Univ. Pronouncing Dict.," Adler's "German-and-Engl. Dict." and many others, give Epsom salts only with the final s. "Spiers and Surenne's French Dictionary" says, Epsom, bitter salts. "Walker's Pronouncing Dictionary" even enumerates and defines salts as the popular name of various chemical salts. David Booth's "Analytical Dictionary" calls ammon. carb., volatile salts. Dr. Horatio C. Wood, in his very carefully prepared "Treatise on Therapeutics," which has just been published, and which embodies all the most recent investigations, uses both the phrases Epsom salts and Glauber salts. There is, in fact, quite a

respectable number of writers who employ this third orthography: Glauber salts, which resembles the German form *Glauber salz*. I am fully aware that perhaps quite as many names may be quoted in favor of Glauber's salt, but I contend that that will not suffice to establish the incorrectness of Glauber's salts.

It has occurred to me that possibly the term salts was never intended as a plural at all, but that it was used to distinguish medicinal *salts* from culinary *salt*, as the terminal s in reality exists in the Greek ἅλς, from which lexicographers seem to agree in deriving salt. It is likewise used to this day in the Romaic word ἅλας. It seems quite probable that the word salts, as a singular, was taken immediately from the German, as ts is phonetically precisely equivalent to the German z of *salz*.

In conclusion it may be well to call attention to the fact, that living languages are constantly changing, and that all arbitrary grammatical rules must make provisions for exceptions. We are forced to abide by that which custom establishes, and may therefore tolerate *salts* in the same way as parallel expressions, such as means, riches, alms, news, waters of the sea, &c. It is recognized as a principle in all languages that they are moulded according to the usages of the best writers and speakers. The dictum of Horace is quite as true at the present day as it was in his:

"—— usus,
Quem penes arbitrium est et jus et norma loquendi."

ADOLPH W. MILLER.

SELECTIONS FROM THE DANISH ARCHIVES FOR PHARMACY.*

BY HANS M. WILDER.

Preservation of Medicinal Preparations by Filtered Air.

Prof. Almén (Upsala, Sweden) has instituted a series of experiments, which confirm the observations of Dusch and Schrœder (*see* "Amer. Jour. Pharm.," 1854, vol. xxiv, p. 376) and those of Folberth (*ibid.*, 1862, vol. xxxiv, p. 336), respecting the possibility of keeping infusions, decoctions and similar (under ordinary circumstances easily spoiled) preparations for years.

This is done by combining the method of Appert with the use of a cotton plug. The preparation to be preserved is heated to the boiling

* "Archiv for Pharmaci og technisk Chemi med deres Grundvidenskaber. Redigeret af S. M. Trier, Assessor pharmaciæ." Kjobenhavn: 1875.

point and stoppered with cotton-wool. If not all the contents of a bottle have to be used at once, then the cotton plug has to be replaced by a cork, through which passes, first, a short tube (the nethermost end of which is drawn out to a point), filled loosely with cotton-wool; and, then, a syphon, the long end of which is furnished with a gum-elastic tube and spring-compressor. This arrangement is, of course, to be applied before heating. As the liquid is drawn off, the air filters through the cotton.

The bottles have to be rinsed with *boiling* water, since cold water contains germs, on the presence of which fermentation and putrefaction depend.

Compressed Powders.

Prof. Rosenthal (Berlin, Prussia) recommends to compress bulky powders which have to be taken in large doses; for instance, Kousso, and other worm medicines.

He does this by means of a common press (vertical), the lower cross-piece of which is provided with a hole, which can be covered by a plate. A tube is put on top of said plate, and the several doses of the powder are introduced, separated by small metal cylinders. Strong pressure is now applied, the above-mentioned plate is removed, and the compressed powder tablets fall through the hole in the cross-piece. It will be seen that, since no water or other constituent is used, said tablets must dissolve readily in the stomach. The largest convenient size to swallow will be found to be 1–2 grams.*—(*Berliner Klin. Wochenschrift*, 1874.)

Nitrous Oxide (Laughing Gas).

A circular of the Royal Danish Board of Health (June, 1873) provides, that: 1st. Nitrous oxide gas must be dispensed from pharmacies only, on requisition (prescription) of an authorized physician or dentist. 2d. The reservoir must be sealed and labelled: "Nitrous oxide gas."

It does not expect every apothecary to prepare said gas, but requires the manufacturers to see, that: 1st. The nitrate of ammonia does not contain chlorine, sulphuric acid nor nitrate of potassa. 2d. That the nitrous oxide gas passes through water, a solution of protosulphate of iron and a solution of potassa or soda. 3d. The gas must not be dispensed, unless it has been in contact with water for at least 24 hours.

* One or two Philadelphia firms make compressed pills a specialty.

THE BOTANICAL SOURCE OF JABORANDI.

BY E. M. HOLMES,

Curator of the Museum of the Pharmaceutical Society.

Having lately had the opportunity of examining a quantity of jaborandi from Pernambuco,* through the kindness of Messrs. Hearon, Squire and Francis, I was fortunate enough to find several ripe fruits of the plant. These fruits are distinctly Rutaceous in their character, and enable me to confirm Professor Baillon's conjecture that they belong to that natural order, and probably to a species of *Pilocarpus*, which, if not identical, certainly comes very near to the *P. pennatifolius*, Lémaire.

The specimens of the plant which I examined appear to belong to a shrub about five-feet high. The root is cylindrical, hardly tapering at all, nearly three-quarters of an inch in diameter for the first twelve inches, and very sparingly branched. The bark of the root is of a pale yellowish-brown color, about one line in thickness, and has a very short fracture. The outermost layers are very thin and papery, and are frequently exfoliated. A small portion of this layer placed under a microscope forms an extremely pretty object, and is seen to consist entirely of strongly reticulated dodecahedral cells. The odor of the root is like that of a mixture of bruised peapods and orange peel. The taste is at first like that of green peas, but this soon disappears, and gives place to a tingling sensation, which is much more powerful than that produced by the leaves or bark of the stem, and endures for a considerable time. By gaslight the transversely-cut surface of the bark is seen to sparkle with minute crystals.

* In a note on the physiological action of jaborandi, published in the "Pharmaceutical Journal and Transactions," January 16, 1875, Mr. Wm. Martindale, F. C. S., gives some information supplemental to the account published in "American Journal of Pharmacy," 1873, p. 345. The strained infusion has but little effect; but taken with the powder, its action becomes apparent within a few (five) minutes, manifesting itself by increased circulation, uneasiness in the head, restlessness and the secretion of saliva. A dose of about 50 grains caused, in about half an hour, impaired vision at a distance and slight dilation of the pupil; the pulse rose to 104, the perspiration became quite excessive, and the collected saliva, which was alkaline in reaction, measured 16 ounces; articulation became difficult and indistinct. Two and one-half hours after taking the dose, vomiting occurred and was promoted by mechanical means, after which the effects began to subside; more spirit and water was given, the clothes were changed, and the patient wrapped in a warm blanket, after which he slept quietly over four hours. He was able to attend to his business, but felt squeamish all next day. It was evident from this account, that four grams (one drachm) of jaborandi, or at least of some samples of it, constitute an excessive dose. —Ed Am. Jour. Phar.

The stem is half an inch in diameter near the root, narrowing to a quarter of an inch in the upper branches. The bark is thin, of a greyish-brown color, longitudinally striated, and sprinkled over in some specimens with a number of white dots which are not lenticels, but the remains of old oil receptacles. The bark of the stem is thin and fragile, and readily scales off when the stem is broken or bent; it has a short fracture, and is yellowish-white internally; its inner surface sparkles with minute crystals; it has not, to any appreciable extent, the peculiar leguminous taste of the root. The wood of the stem is yellowish-white and remarkably fibrous. The stem is alternately branched at a very acute angle (about 20°), the branches being erect and furnished with alternate leaves. The leaves, one of which is represented in fig. 1, are imparipinnate, about nine inches long, with from three to five pairs of opposite leaflets, which are articulated to the rachis and have very short slighty swollen petiolules, those of the upper leaflets are about one line long, those of the lowest leaflets about three lines long, and the terminal one has a petiolule from half to one inch long. The rachis of the leaf is swollen at the base. The pairs of leaflets are usually about 1¼ inch apart, the lowest pair being about four inches from the base of the rachis.

The leaflets are very variable in size, even on the same leaf. Their general outline is oblong-lanceolate. They are entire (fig. 2), with an emarginate or even retuse apex, and an unequal base. Their texture is coriaceous, and when moistened reminds one in size and thickness of the leaf of the cherry laurel. The veins are prominent on both sides of the leaf, and branch from the midrib at an obtuse angle (about 60°) in a pinnate manner, remaining distinct until within one quarter of an inch of the margin of the leaf, where they become lost in the network of veinlets. The midrib is scarcely prominent on the upper, but forms a distinct keel on the under surface of the leaflet. When held up to the light the leaflets are seen to be densely pellucidly punctate. These pellucid dots, which are receptacles of secretion, are not arranged, as in another kind of jaborandi, in lines along the veinlets, but are irregularly scattered all over the leaf, and appear equally numerous in every part; they are mostly rather large, but vary a little in size. The whole plant is glabrous.

I may remark here that there appears to be two varieties, if not species, of this *Pilocarpus*, the one being perfectly smooth in every part, as above described, and the other having the stems, petioles, and under

surface of the leaves covered with a dense velvety pubescence composed of simple hairs. The hairs are not so numerous on the leaves and lower part of the stems, but appear to be singularly persistent, as they may be found on the bark for a considerable distance down the stem when it is examined with a lens. In shape and size the leaves resemble those above described, but are rather thinner in texture, and have a somewhat different and less pungent taste. The lowest pair of leaflets in the specimens I have examined are only two to three inches from the base of the rachis. I have not succeeded in finding entirely glabrous leaves on the stems which have hairy leaves, nor hairy leaves on the stems which have smooth leaves, and therefore consider that the plant with hairy leaves is probably a distinct variety.

The inflorescence is a raceme, six or eight inches long, judging from the peduncle figured on p. 175. The base of the peduncle there represented is entire, but the top is evidently broken off, so that it may have been one or two inches longer. The pedicels, so far as can be learned from the scars on the peduncle, are numerous and about three-eighths of an inch apart. Whether they are horizontal or not when flowering it is impossible to say. The only two specimens I have seen are in fruit and have the pedicel deflexed and about half an inch long. The fruit, fig. 3, closely resembles in external appearance that of a specimen of a Cuban plant in the British Museum, * referred by Asa Gray to *Pilocarpus heterophyllus* (Pl. Wrightianæ, p. 170; Wright, 1129.) When perfect it consists of five carpels, of which not more than two or three are usually developed to maturity. When ripe the carpels dehisce into two valves, as in fig. 5, and then remind one strongly of miniature cockle shells, fig. 4, with the valves open exposing the animals.

This appearance is owing to the fact that, as in two or three other closely allied genera, the endocarp separates at a very early stage, and thus forms an inner case for the seed, as represented in figs. 5 and 7. The outer portion of the carpel, consisting of the united epicarp and mesocarp, is in most of the specimens of a pale brown or buff color, coriaceous, convex on both sides, of a somewhat circular form, but with the inner edge (*i. e.*, that nearest to the stigma) nearly straight, marked both inside (fig. 6) and outside (fig. 4) with curved ridges, which

* The genus *Galipea*, to which *P. heterophyllus* has been referred, is distinguished from *Pilocarpus* by the convolute cotyledons, tubular flowers, and anthers not versatile.

1. An entire leaf. 2 Leaflet: under size, showing the venation. 3. An entire fruit and peduncle—nat size. 4. Ditto with two carpels only developed, showing the deflexed pedicel. 5. Carpel, showing the dehiscence. 6. A carpellary value with the endocarp removed, showing the reticulated inner surface. 7. Endocarp, showing the dilated placenta and short funiculus. 8. Placenta separated. 9. Seed; *a*, hilum. 10. Endocarp without placenta. 11. Cotyledon.

anastomose towards the outer edge and are almost absent from the inner edge. The convex surfaces only are dotted with oil receptacles. The endocarp (fig. 10) is smooth and pale yellow, with a wide sinus in the inner edge, which is occupied by a membranous expansion (fig. 7) of the shape shown in fig. 8. To the upper portion of this expansion, which appears to be a dilatation of the placenta, the seed (fig. 9) is suspended by a narrow, lancet-shaped, extremely short funiculus; this is shown in fig. 5. The seed, of which there is only one in each carpel, is black and shining, somewhat reniform, convex on both sides, enlarging towards its base, and forming a sharp ridge at the back towards the apex.

The hilum is lancet-shaped, the vessels appearing to pass through its lower end (fig. 9 *a*). The testa is thick and coriaceous, the endopleura membranous. The seed is inverted, somewhat reniform in outline, with a superior radicle, plano-convex cotyledons, and is exalbuminous, the radicle being very minute (fig. 11).

The genus *Pilocarpus*, to which our plant has been referred by Professor Baillon, was limited, as originally defined by Vahl* to plants with simple leaves, and seeds having biauriculate cotyledons. As further extended by Bentham and Hooker in their "Genera Plantarum," p. 299, the plants of the genus *Pilocarpus* are said to have "simple, ternate or *pinnate* leaves," while no mention is made of the cotyledons being biauriculate. The seeds, however, are stated to be ovate, with a membranaceous testa, and exalbuminous.

The Jaborandi plant differs from the description of the genus, as defined in the "Genera Plantarum," only in the following particulars: the seeds are somewhat reniform, not ovate, and the testa is coriaceous, not membranaceous. The cotyledons are not auriculate, but as that character is not given as an important one, it alone is not sufficient to exclude the plant from the genus.

Since there are several genera closely allied to *Pilocarpus* in the tribe *Xanthoxyleæ*) to which Jaborandi evidently belongs, it will not be possible, until the flowers of the Jaborandi plant have been examined, to decide with certainty whether it belongs to the genus *Pilocarpus* or not, for the above-mentioned differences can scarcely be considered sufficient to separate it. . . . . .

As there are several plants used in South America under the name of Jaborandi, which seem to possess somewhat similar properties in

* "Vahl Eclog.," i, p. 29.

varying degrees, I think it will be well in future experiments to distinguish the Jaborandi here described and figured as Pernambuco Jaborandi. Another species, which is in use both in France and this country, is a kind of *Piper*. It is readily distinguished from the Pernambuco Jaborandi by the thin texture of the leaf, which is acuminate, and has pellucid dots so minute as not to be visible to the naked eye when the leaf is held up to the light.

In the sixty-fifth fasciculus of Martius' great work, the "Flora Brasiliensis," containing the *Rutaceæ*, by Engler—only recently published and received in England in February—three new species of *Pilocarpus* with pinnate leaves are mentioned, viz.: *P. Selloanus*, Engl., *P. grandiflorus*, Engl., and *P. macrocarpus*, Engl. Of these, the description of *P. Selloanus* answers to the smooth variety of the Jaborandi of Pernambuco much more nearly than that of *P. pennatifolius*, Lém.

From the following analysis of the pinnate-leaved species copied from the above work, it will be noticed that the author separates the species with smooth leaves from those with hairy leaves; hence, if this arrangement be accepted, the hairy variety of the Pernambuco Jaborandi must belong to a distinct species: *

B.—Leaves imparipinnate, 2–6 jugate.

a. Leaves smooth on both sides.

P. Selloanus, Engl.; leaves 2–3 jugate.
Pedicels slender, six times longer than the buds; ovary smooth.

P. grandiflorus, Engl.; leaves 6 jugate
Pedicels thick, scarcely longer than the buds; ovary densely ferruginous-pilose.

b. Leaves shortly pilose beneath, especially on the nerves.

P. pennatifolius, Lém.; leaves 1–3 jugate.
Leaflets linear; oblong midrib; and lateral veins prominent beneath.

P. Goudotianus, Tulasne; leaves 1 jugate and unifoliate.
Leaves large, obovate or lanceolate-oblong, midrib only rather prominent beneath.

P. macrocarpus, Engl.; not sufficiently known.

The following is a translation of the diagnosis of *P. Selloanus*:

"*Stem* covered with thin purple bark, leafy towards the apex. *Leaves* imparipinnate. *Petiole* of leaf semiterete, flattened a little above, quite glabrous. *Leaflets* trijugate, oblong, distinct, nearly equal, obtuse, margin reflexed, membranaceous or subcoriaceous, greyish-green, quite glabrous on both sides, pellucid punctate; midrib sulcate above, very prominent beneath; lateral nerves rather prominent beneath; petiole of leaflets short. *Raceme* terminal, nearly three times longer than the leaves, terete, purple, quite glabrous, with slender pedicels horizontally patent and slightly hairy, six times longer than the buds and furnished at the middle and base with two minute ciliolate bracts. *Calyx* very short, with broad rounded lobes, which are

* The hairy variety of *Jaborandi* is allied to *P. pennatifolius* in the texture of its leaves, but from the persistence of the hairs, even upon the grey bark, is regarded by the author as being probably a distinct plant.

ciliolate. *Petals* coriaceous, lanceolate, acute, furnished with prominent midrib, inflexed at the upper margin and at the apiculus. *Stamens* shorter than the petals. *Ovary* depressed, globose, very smooth, half included in the disk, and crowned with a short, rather thick style."

The figure represents the leaves being slightly emarginate. In the *greyish-green* leaves, *slender* peduncle and pedicels, and smooth fruit, *P. Selloanus* agrees with the Jaborandi plant; but the pedicels of *P. Selloanus* are longer and hairy; this, however, future specimens of Jaborandi may perhaps prove to be of no importance.

P. pennatifolius, Lém., is described as having *bright green* leaves, hairy on the veins beneath, and a thick peduncle with short thick pedicels. So far, therefore, as the most recent researches on this genus have made known the species, Jaborandi must be said to approximate more nearly to *P. Selloanus* than to *P. pennatifolius*, Lém.—*Pharm. Jour. and Trans.*, 1875, *Jan.* 23 *and Feb.* 13.

MINUTES OF THE PHARMACEUTICAL MEETING.

The sixth meeting of the session was held March 16th, 1875, Dr. Pile being in the chair, welcomed the many strangers present.

The following donations were made to the cabinet:

By Mr. Betanelly, a handsome specimen of the flowers of *Pyrethrum roseum*, imported this season; by Dr. Miller, glucose, made from wheat, very white, with sweet taste, without any nauseous bitterness whatever; it had been used by R. V. Mattison as an excipient in pill masses, and by A. P. Brown in the preparation of syrup of the lactophosphates. He presented also cosmolin ointment, which closely resembles cosmolin, and is prepared from one part of paraffin and sixteen parts lubricating oil—the oil is repeatedly filtered through animal charcoal and by aid of a water-bath formed into an ointment with the paraffin. Joseph L. Lemberger remarked that it was a near aproach to cosmolin, and if it will answer, we need nothing better. Dr. Miller also presented pure oil of origanum, the price of which is far in excess of the quotations for the commercial article, and oil of red thyme, which is sold for origanum, the so-called oil of white thyme being produced by redistillation of the red.

Prof. Maisch exhibited the following specimens of American volatile oils made by George G. Percival of Waterville, Maine, *Abies Canadensis*, *Abies nigra*, *Tanacetum*, *Hedeoma* and *Solidgo*. Mr. Percival has a patent for their preparation by means of hot water, they being more soluble in hot than in cold water, but he states that absolutely pure oils cannot be manufactured for the prices at which the usual commercial qualities are offered. Dr. Pile and Prof. Maisch bore testimony to this fact from personal experience in the production of a few volatile oils; under the most favorable circumstances the cost was from three to sixteen times the market quotations.

C. L. Eberle thought that other products, such as some chemicals, were subject to the same drawback, more especially if the cost of the pharmacist's labor be added,

yet the practice is to be lauded. However, Dr. Pile had found that there was a material saving in preparing many chemicals, but that there are some that can be bought from the large manufacturer at a less cost. Prof. Maisch thought that Mr. Eberle had based his opinion partly upon the fact that new products, of which, when introduced, little is known in regard to the best processes for their preparation, after discoveries in this direction, generally become much cheaper. Dr. Miller instanced a druggist of this city who prepares his nitrate of silver at a saving to himself. He also exhibited an adulterated oil of Canada *Erigeron*, in which a very strong terebinthinate odor was apparent.

C. L. Eberle presented a plant from the Cape of Good Hope, most probably a *Gnaphalium* or allied species.

Prof. Maisch exhibited a sample of nearly white salicylic acid, which had been prepared by E. Schering, of Berlin. It is now being experimented with in Germany and other places as an antiseptic, and is being prescribed internally and externally. It seems to have all the desirable qualities of carbolic acid without its objectionable ones. It is prepared by combining pure carbolic acid with caustic soda, and treating this compound with dry carbonic acid under the influence of a gradually increased heat, when one-half of the carbolic acid distills over, while the other half, into the molecule of which carbonic acid enters, remains behind as salicylate of sodium, from the hot aqueous solution of which, on supersaturation with muriatic acid, salicylic acid is obtained in the form of a pale brownish powder, requiring some purification to obtain it white or nearly so. It has been employed for preventing or arresting fermentation, one part of the acid to from 5,000 to 20,000 parts of the liquid being sufficient; it has been used for the dressing of wounds and recommended internally in various diseases, regarded as contagious. It has no odor and its solution is destitute of caustic properties and tasteless. Its antiseptic properties may be depended on as long as the acid is in its free state, and until it is neutralized by the ammonia gradually generated in vegetable infusions; this may explain why oil of gaultheria, which is methylsalicylic acid, does not prevent fermentation to the same extent as other agents.

Mr. Heinitsh: Oil of gaultheria is much used in the country for the preservation of cider, and it seems to answer a good purpose. Mr. Eberle stated that oil of mustard is one of the best agents for this purpose. Mr. Lemberger attributed this property somewhat to the sulphur contained in it: but Prof. Maisch thought that this could hardly be the case, since it was present as allyl-sulphocyanide.

Dr. Miller exhibited so-called magnolia seed, which Prof. Maisch recognized as the seeds of *Nigella Damascena*, Lin., a ranunculaceous plant of Southern Europe; when rubbed they have a very agreeable fruit odor.

Mr. Gaillard presented a cotton-root bark from Sea Island cotton gathered in 1870—a physician had experimented with it and tested its properties as an emmenagogue. It was used in the form of an infusion made of two troy ounces to one pint of water and in seven cases out of eight it had the desired effect.

Prof. Maisch observed that the bast-fibres were not as strong as usual, and was uncertain if it was a peculiarity of this variety, or due to age. He had been shown, recently, by a firm in this city, a genuine cotton-root bark, which, when chewed, colored the saliva green, and also made a tincture of greenish-red color.

J. A. Schiedt called attention to a factitious hemlock pitch, which is, probably, a

mixture of Burgundy pitch and resin. He presented a copy of the "Edinburgh New Dispensatory," Philadelphia, 1791.

Mr. Wellcome called attention to the use of phosphate of sodium to increase the solubility of salicylic acid in water, and stated that Dr. Squibb is preparing this acid, of a light buff color, on a large scale.

Prof. Maisch read a letter, addressed to him as Editor of the Journal, urging a correct rendering of words in common use. (See page 168.) This led to a discussion in regard to many names, which, although not accurately correct, were well known to the public. Prof. Maisch urged that the termination of the names of neutral principles should be uniformly rendered by *in* instead of *ine*, as is frequently done.

Wm. McIntyre called attention to the mixture of oxide of zinc, tannic acid and glycerin. The resulting compound, from its consistency, will not answer the intention of the prescriber.

Mr. Eberle had met with a difficulty in dispensing chloride of zinc with glycerin and water.

Dr. Miller reverted to the sugar-coated pills, spoken of at a former meeting, prepared from muriate of cinchonia, and sold as sulphate of quinia pills. These, with pills from several makers, had been examined by a student of the College, and he desired that the paper be read. Mr. Henry Trimble was introduced and read the paper, giving his results. Prof. Maisch said that Prof. Bedford, at the meeting of the New Jersey Pharmaceutical Association, had mentioned Talmadge & Co., of New York, dealers in essential oils, as the parties selling this fraudulent quinia.

Dr. Miller read a paper entitled "Official and Officinal." Prof. Maisch was glad to hear this paper read, which was in accordance with his views. (See page 165.)

Mr. Heinitsh exhibited two varieties of very effective capsicum fruits grown by himself at Lancaster, Pa.

Dr. Miller showed an opium well filled with shot.

The thanks were given to the donors of specimens, and the papers read referred to the Publication Committee.

WILLIAM MCINTYRE, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

PHILADELPHIA COLLEGE OF PHARMACY.—The fifty-fourth course of lectures closed February 26th, and the examinations commenced March 1st, ending Thursday, March 4th. The following questions were submitted to the candidates, five hours being allowed to furnish the written answers:

QUESTIONS IN CHEMISTRY, BY PROF. ROBERT BRIDGES, M. D.

1. What *compounds of Iodine* are officinal among the preparations of the U. S. P.? State and explain of each the method by which it is prepared, the physical and chemical properties, and any impurity or adulteration it may contain, with the mode of detection.

2. What is the source of *Tartaric Acid?* State the method by which it is obtained Give the officinal names of its compounds which are among the preparations of U.

S. P., the substances used in their manufacture, together with the method common to all, adding any precaution necessary in special preparations.

3. What is the officinal name of *Chloride of Lime?* State its mode of preparation, and the chemical changes which take place during its production. What officinal preparation (U. S P.) is made from it, and how?

4. What is the general formula for *an Alum?* State what univalent and what trivalent elements or compounds may enter into its composition, and the crystalline form common to all Alums.

5. What are the antidotes for *Tartar Emetic, Corrosive Sublimate, Arsenic* and *Lunar Caustic?* State the characters essential to an antidote, and the mode of action in each of the above cases.

6. What is the source and mode of preparation of *Sodii Phosphas?* Give its composition, and the nature of the change produced in it by a high temperature.

7. What *compound of Carbon* exists in chalk, and what gas is obtained from chalk by the action of acids? Give its composition, and its properties in relation to animal and vegetable life.

8. What is the officinal name for *Aqua Regia?* Give its mode of formation, and name the most efficient agent it contains, and any properties acquired which did not exist in the compounds from which it is formed.

9. By what tests may the principal *Mineral Acids* be distinguished from each other?

10. By what tests may the principal *Alkalies* be distinguished from each other?

QUESTIONS IN MATERIA MEDICA AND BOTANY, BY PROF. J. M MAISCH.

1. Enumerate the different forms of *Vegetable Tissue*, and describe them briefly.

2. What is *Calumba?* Give the name, natural order, and habitat of the plant or plants yielding it; describe the drug and its structural characteristics; name its constituents of pharmaceutical and medicinal importance, and give its medical properties and dose.

3. Describe the development of *Colchici Radix*; give the name, natural order, and habitat of the plant; state when the drug should be collected, its important constituents, medical properties and dose.

4. Which *roots* of the natural order of *Compositæ* are officinal; how may they be distinguished from each other; and what constituent is common to all?

5. What is *Prunus Virginiana?* Give the botanical name, natural order, and habitat of the plant, its constituents, the reaction occurring when in contact with water, its medicinal properties, dose, and proper time of collection.

6. Name the officinal *leaves* of the natural order of *Ericaceæ*. How do they differ from each other in appearance; what are their medical properties; and what principles are found in them?

7. Describe *Crocus* according to origin, structure, composition, and properties; name the adulterations and substitutions; and state how they may be recognized.

8. *Anisum.*—Give the name, natural order, and part of the plant used, its structural characteristics, and how it may be distinguished from allied drugs. In what other drugs is a similar volatile oil found?

9. Describe the formation of *Ergot*, its appearance, structure, and preservation. How long may its medical properties be relied on, and what are its active constituents?

10. Name the officinal *Gums*, and the plants from which they are derived; state how they are produced in the plants, how obtained, and how they differ from each other chemically and in solubility.

QUESTIONS IN PHARMACY, BY PROF. JOSEPH P. REMINGTON.

1. Name the *Units of Length*, *Weight* and *Capacity* of the French Metrical System, and state how each one was obtained.

2. What is meant by the term *Specific Gravity?* Name the most accurate instrument for taking the specific gravity of liquids, and state how you would take specific gravity of substances soluble in water.

3. Define the process of *Evaporation*, and give the conditions which favor it. Describe separately a sand, steam and water bath, and, in the following operations, state which means of applying heat would be most properly used: Preparation of Oleum Æthereum, Ferri et Quiniæ Citras, Manufacture of Glycerin from Fats.

4. How is *Æther Fortior* prepared? What is its specific gravity, and what are the best tests of its purity?

5. What is a *Fluid Extract*, and what advantages are possessed by this class of preparations? Give the general formula in the "U. S. Pharmacopœia," and why is the addition of an acid made to some of the Fluid Extracts.

6. Define *Opium* as it appears in the list of the "U. S. Pharmacopœia." Why is Powdered Opium directed in making the officinal preparations, and what is the usual loss in powdering the drug?

7. Give the outline of the "U. S. Pharmacopœia" process for preparing *Quiniæ Sulphas*. Give its chemical composition, and one of the best tests for recognizing it.

8. How do you prepare, by the "U. S. Pharmacopœia,"

Pilulæ Rhei Compositæ?
Vinum Ergotæ?
Tinctura Veratri Viridis?
Emplastrum Picis Burgundicæ?
Unguentum Veratriæ?

9. What is a *Glucoside?* Give a method for preparing *Acidum Tannicum*, and how may it be distinguished from Acidum Gallicum?

10. What are the ingredients in the officinal formula for

Extractum Colocynthidis Compositum?
Confectio Opii?
Pilulæ Catharticæ Compositæ?
Ceratum?
Charta Sinapis?

QUESTIONS BY THE EXAMINING COMMITTEE.

1. Give the locality, natural order and name of the tree which furnishes *Lignum Vitæ*; also, a description and officinal name of the wood. Does the wood yield another article used in medicine? Give its officinal name; describe it; the adulterations that may be practiced, and how to detect them.

2. Give the botanical name, natural order and locality of the tree from which *Turpentine* is derived. Describe the process by which it is obtained. What two officinal products are obtained from it, and how are they prepared?

3. State why Nitric Acid is used in the preparation of Solution of *Chloride of Iron*;

Water of Ammonia in Solution of *Citrate of Iron*; Iodide of Potassium in *Iodine Ointment*; and, also, the preparation of Iron contained in *Compound Mixture of Iron*, when freshly prepared.

4. What is the officinal name of *Lime*, and how prepared for pharmaceutical purposes? What is its Metallic base? Is Caustic Lime more soluble in hot or cold water? Give the formula for making *Liquor Calcis*, and into what officinal preparations does it enter?

5. Give the outlines of the process for making *Subcarbonate* and *Subnitrate of Bismuth*; the principal impurity met with, and explain the method adopted for removing it.

6. Describe *Tartar Emetic* as found in the shops; also, give the officinal process for preparing it, and the dose. State what preparations it enters into the composition of.

7. State the outlines of the method used in preparing *Strychnia*; the other alkaloid met with, and how removed; also, the characteristic chemical test for Strychnia, and the most important means that should be promptly uesd in case of poisoning from it.

8. Numerate the several officinal *liquid preparations* containing *Opium*; their strength per ounce, and dose; also, the process for making Tinctura Opii Deodorata, and reasons for the same.

9. Give the ingredients of *Compound Resin Cerate, Chloroform Mixture, Compound Pills of Antimony, Compound Pills of Galbanum, Pills of Copaiba, Compound Pill of Soap, Compound Powder of Rhubarb, Aromatic Spirit of Ammonia, Garlic Syrup*, and *Ointment of Cantharides.*

10. State which of the following *Prescriptions* are proper and which improper and, in the latter case, the reasons. How would you dispense them?

A.

℞.—Tinct. Belladonnæ, . . fʒiss
Spir. Ammon. arom., .
Tinct. Valerian., . . āā fʒss
M. S.—Half a teaspoonful in water every three hours.

B.

℞.—Olei Ricini, ... ʒvi
Tinct. Opii, . . . fʒi
Ag. Menth. pip., . . . fʒiii
Pulv. Acaciæ, . . .
Sacch. albi, . āā q. s. ft. emuls.
S.—A tablespoonful every two hours.

C.

℞.—Hydrarg. chlor. corros., . gr. viii
Ft. Pilul. No. xxxii.
S.—One pill three times a day.

D.

℞.—Tinct. Veratr. viridis, . . fʒi
Aquæ, ... fʒvi
Syrup. simpl., . . . fʒii
M. S.—Give two teaspoonfuls every three hours during the continuance of fever.

E.

℞.—Pulv. Ipecac. et Opii, . . gr. i
Morph. Sulph., . . gr. x
M. ft. pulv. No. vi.
S.—One every three hours until relieved.

F.

℞.—Aconitiæ, ... gr. ii
Sacch. albi, . . . ℈ii
M. ft. pulv. No. x
S.—One powder three times a day.

The following specimens were on the table for examination, fifteen minutes being given for each set, to recognize them:

Chemistry.	*Materia Medica.*	*Pharmacy.*	*Examining Committee.*
Sulphur,	Serpentaria,	Pulv. aloes et canellæ,	Potassii nitras,
Iodinium,	Dulcamara,	Confectio aurantii cort.,	Cinnamom. zeylan.,
Acid. muriaticum,	Guaiaci lignum,	Mistura amygdalæ,	Carum,
Acid. oxalicum,	Marrubium,	Liqu. ferri chloridi,	Infusum pruni virg.,
Potassii bicarbonas,	Sabina,	Linimentum saponis,	Tinctura quassiæ,
Potass. bitart. cryst.,	Lavandula,	Acid. sulphur. arom.,	Tinctura conii,
Calx chlorinata,	Chenopodium,	Tinctura benzoini,	Tinctura myrrhæ,
Plumbi oxidum,	Colchici semen,	Syr. sarsaparillæ cp.	Syrup. scillæ comp.,
Zinci sulphas,	Lycopodium,	Extr. buchu fluid.,	Extr. valerianæ fluid.,
Alcohol amylicum.	Catechu.	Uuguent. hydrargyri.	Cerat. resinæ comp.

The following report was presented to the Board of Trustees and the candidates recommended therein were elected Graduates in Pharmacy:

The Professors and Examining Committee respectfully report that the following named gentlemen, having complied with the rules of the College and passed a successful examination, are hereby recommended for the degree of Graduate in Pharmacy. The names are set down in the order of merit.

EXAMINED IN MARCH, 1875.

	NAME.	STATE.	THESIS.
1	Howard Grant Jones,	Pennsylvania.	Analysis of a Cumberland Coal.
2	George Munson Shamalia,	New Jersey.	The Preparation of Medicinal Waters.
3	John Blair Smith King,	Pennsylvania.	The Progress of Medicine.
4	Lewis Christopher Hopp,	Ohio.	Sanguinaria Canadensis.
5	Frank Leopold Sussdorff,	N. Carolina.	Prinos Verticillatus.
6	Odillon Barrot Richardson,	Vermont.	Moulding Suppositories without Melting.
7	Thomas Cullen Tomlinson,	Delaware.	Percolation.
8	William Harveit Ramsey,	Wisconsin.	Hop Culture in Wisconsin.
9	William Conner,	Pennsylvania.	An Adjustable Plaster Machine.
10	Robert Henry Walch,	"	Xanthoxylum Fraxineum.
11	Rudolph Frederick George Voelcker,	Texas.	Rais del Indico.
12	Joseph Cook Evans,	Pennsylvania.	Unguenta.
13	Leonidas Hamlin Street,	New Jersey.	Gentiana Lutea.
14	Walter Eugene Bibby,	Ohio.	Phytolacca Decandra.
15	Charles Meyer Miller,	"	Asclepias Tuberosa.
16	James Franklin Hayes,	Pennsylvania.	Pharmaceutical Education.
17	Harry Percy Lechler,	Virginia.	The Constituents of Plants.
18	James Maclinn Kimbrough,	Tennessee.	Fluid Extracts.
19	Louis Gaylord Clarke,	Ohio.	Liriodendron Tulipifera.
20	Frank Conrath,	Wisconsin.	Prinos Verticillatus.
21	Charles Ferdinand Hartwig,	"	Eucalyptus Globulus.
22	William Gustave Schirmer,	Pennsylvania.	Capsicum Annuum.
23	Thomas Alexander Cheatham,	Georgia.	Examination of Glycerins.
24	Henry Prickett Thorn,	New Jersey.	Aralia Spinosa.
25	Frank Pierce Brown,	Pennsylvania.	Apothecaries' Mistakes.
26	Clarence Anderson,	"	Alcohol.
27	Howard Dunfee Reifsnider,	Ohio.	Veratria.
28	Warren Henry Poley,	Pennsylvania.	Phytolacca Decandra.
29	Harry Clayton Manlove,	Delaware.	Syrup of Garlic.
30	James Lemon Patterson,	Pennsylvania.	Aspidium Marginale.
31	William Reuben Powell,	Canada.	Iris Versicolor.
32	Manilus Henry Stuart,	Pennsylvania.	Glycerate of Iodide of Iron.
33	Edward Joseph Davidson,	"	On Corrosive Sublimate formed when Calomel is Prescribed with Carbonated Alkalies, Sugar, &c.

	NAME.	STATE.	THESIS.
34	Richard Knox,	Illinois.	Piper Nigrum.
35	Joseph Yeager Taylor,	Pennsylvania.	Asclepias Incarnata.
36	William Burk McRoberts,	Kentucky.	Status of Pharmacy in Kentucky.
37	Samuel Pierce Cline,	New Jersey.	Glycerin and its Pharmaceutical Uses.
38	Samuel Robinson Stirling,	Pennsylvania.	The Manufacture of Extemporaneous Elixirs.
39	Marshall Girton Kinney, jr.,	"	Pharmaceutical Incongruities.
40	William Seager Mitchell,	"	The Seed of Colchicum Autumnale
41	Louis Philip Reimann,	New York.	Extractum Glycyrrhizæ.
42	James Augustus Maston,	Virginia.	Fluid Extracts.
43	Henry Morton Brennan,	Pennsylvania.	Linimentum Saponis, U. S. P.
44	Judge Judson Creen,	"	Benzin.
45	William Brown Means,	"	The Advantage of Knowledge of Chemistry to Pharmacists.
46	Wilson Luther Kutz,	"	Medicated Waters.
47	Henry Stryker Boisnot,	New Jersey.	The only Insects used in Pharmacy.
48	Edward Plummer,	New York.	Aquæ Medicatæ.
49	Albert Paul Keller,	Pennsylvania.	The Abuses of Latin.
50	George Washington Barrere,	Ohio.	Pharmacy.
51	Charles Henry Tatem,	Pennsylvania.	Tincture of Calamus.
52	Francis Peter Sher,	"	Potassii Bromidum.
53	William Henry Braddock,	New Jersey.	Medicinal Substances, their Strength and Quality.
54	Joseph William Seeger,	Pennsylvania.	Double Cone Suppositories.
55	Samuel McGill Beidler,	"	Patent Medicines.
56	William Bernard Bicker,	"	Chemical Food.
57	Perry Martin Gleim,	"	Fructus Benzoini Odoriferi.
58	John Henry Blake,	"	Physostigma Venenosum.
59	Charles Pierre Janvier,	"	The Ideal Pharmacist.
60	Richard Somers Justice,	New Jersey.	Chionanthus Virginica.
61	William Meyer,	Wisconsin.	Hepatica Americana.
62	Lewis Henry Wilson,	New Jersey.	Cerasus Serotina.
63	Silas Walton Johnson,	Pennsylvania.	Medicine in the Olden Times.
64	John Franklin Wilgus,	New Jersey.	Chiretta.
65	Wilbur Fisk Crawford,	Pennsylvania.	Digitalis Purpurea.
66	William James Stoner,	"	The Preparation of Tincture of Arnica.
67	Wilson Vanard Stansbury,	"	Datura Stramonium.
68	David Wilson Levy,	"	Illicium Anisatum.
69	Ephraim Frank Stoner,	"	Radix Sumbuli.
70	Samuel Baker Davis,	"	Atropa Belladonna.
71	Thaddeus Everhart,	"	Medicated Waters.
72	Reuben L. Jacoby,	"	Button Snake Root.
73	Albert Robert Hugo Fiedler,	"	Mitchella Repens.
74	Jacob Messing, jr.,	New Jersey.	Effervescing Solution of Tartrate of Sodium.
75	James Davison,	Pennsylvania.	Chemical Philosophy.
76	Otto Kraus,	"	Camphor and Cream of Camphor.
77	Ira Daniel Webster Kramer,	"	Derivation of fixed Oils.

EXAMINED IN JUNE, 1874.

78	Jacob Ard Muthersbough,	Pennsylvania.	Mercury.
79	James Henry Buckingham,	"	Dracontium.
80	Charles Swift Riche Hildeburn,	"	Hyoscyamus Niger.

ROBERT BRIDGES, *Professor of Chemistry.*
JOHN M. MAISCH, *Professor of Materia Medica and Botany.*
JOSEPH P. REMINGTON, *Professor of Pharmacy.*

WM. J. JENKS,
SAMUEL S. BUNTING,
WM. B. WEBB,
D. S. JONES,
} *Examining Committee.*

The Commencement took place, at the Academy of Music, on the evening of March 16th, the Germania Orchestra, George Bastert, leader, being in attendance. The degree of Graduate in Pharmacy (Ph. G.) was conferred upon the above-named gentlemen by Dillwyn Parrish, the President of the College, after which the Valedictory Address was delivered by Prof. J. M. Maisch. The speaker referred to the growth of the Philadelphia College of Pharmacy, the increased educational facilities for pharmacists in the United States, and the progress of pharmacy in general. The part pharmacists had taken in developing science was illustrated by the scientific labors of Scheele, the necessity of a professional education and of the regulation of the practice of pharmacy by legal enactments was dwelled upon, and with a few words of advice to the graduates the address closed.

The graduating class presented to the College an excellent oil painting of Prof. J. P. Remington, Mr. Walch making the presentation speech, and Prof. Bridges, as Chairman of the Board of Trustees, receiving the picture.

The exercises closed with the distribution of the presents sent upon the stage by the friends of those participating in the exercises, and consisting of books, utensils and the usual allotment of floral offerings.

ALUMNI ASSOCIATION OF THE PHILADELPHIA COLLEGE OF PHARMACY.—The Eleventh Annual Meeting of the Alumni Association was held in the College Hall, 145 North Tenth street, March 11th, 1875, at 3½ o'clock P. M.

The usual business of the Association was transacted. After the President had read his Annual Report, the following officers were elected: President, A. W. Miller, M. D.; Vice-Presidents, George W. Kennedy and Charles A. Weideman; Recording Secretary, Allen Shryock, Broad and Parrish streets; Corresponding Secretary, H. G. Keasby; Treasurer, Edward C. Jones, Fifteenth and Market sts.; Executive Board, James A. Parker, Richard V. Mattison, Elliot D. Paxson, Howard B. French, William E. Krewson and William McIntyre; Trustee of Sinking Fund, Thomas S. Wiegand; Orator, Albert E. Ebert.

The new Constitution was considered and adopted. The reception of the Graduating Class took place on Monday evening, March 15th, at 8 o'clock, ladies forming a large portion of the audience. The President, Mr. William McIntyre, occupied the chair, and Dr. Lawrence Turnbull, Class 1842, delivered the Annual Address, which was replete with scientific interest. The Gold Medal, to the student who had passed the best examination, was awarded to Howard Grant Jones, of Philadelphia. The Certificate, for the highest average in Chemistry, was presented to Robert H. Walch, of Pennsylvania. Mr. Lewis C. Hopp received the Certificate for the best examination in Pharmacy, and Mr. George M. Shamalia, New Jersey, was awarded the Certificate for proficiency in Materia Medica.

Prof. P. W. Bedford, of the New York College of Pharmacy, being present, was called on, and make a few pleasant remarks; he was followed by Prof. Maisch, Dr. McQuillen, of the Philadelphia Dental College, Prof. J. P. Remington, Daniel S. Jones and R. V. Mattison. An opportunity was offered for social conversation, and at a late hour all retired, well pleased with the interesting exercises of the evening.

EDWIN M. BORING, *Secretary.*

THE NEW YORK COLLEGE OF PHARMACY held its Forty-fifth Commencement at Association Hall on the evening of March 25th, when the following gentlemen re-

ceived the diploma of Graduate in Pharmacy: Alfred W. Cook, Federico Cook, James N. Davern, David R. Davis, Frederick Dilthey, Oscar E. Dudley, Albert C. Erhard, Henry S. Gill, Monroe C. Griessman, Carl Grossmann, Benjamin F. Hays, Federico F. Herman, Carl Herzog, Frank F. Knapp, J. A. August Kuehn, Carl Lorenz, Adolph Mack, C. Justus Meyer, Cyrus W. Minor, Albert W. Morck, Albert W. Neufield, Stephen B. Nichols, Matt. W. Parsons, John P. Regan, Richard Reuter, E. Earl Safford, John B. Sagarra, Charles E. Stammler, James T. Stevens, George W. Stoner, Joseph F. Talson, Jr., Graham McF. Tindall, Frederick W. Turner, Luther Van Buskirk, Eduard Walther, George L. Wilms, John F. Wurthmann

At the Annual Meeting of this College, held March 18th, 1875, the following Officers and Committees were elected: President, Paul Balluff; Vice-Presidents, William Neergaard, M. D., Ewen McIntyre, Bernard H. Reinold; Treasurer, Theobald Frohwein; Secretary, M. L. M. Peixotto; Trustees, Gustavus Balser, Henry A. Cassebeer, Jr., George C. Close, William Hegeman, Edward L. Milhau, William M. Olliffe, Gustavus Ramsperger, Charles Rice, Daniel C. Robbins, John W. Shedden, William Wright, Jr.; Committee on the Revision of the Pharmacopœia, P. W. Bedford, Paul Balluff, Charles Rice; Committee on Non-Officinal Formulæ, Charles Rice, P. W. Bedford, William Hegeman, Ewen McIntyre, F. A. Reichardt; Delegates to American Pharmaceutical Association, Paul Balluff, Frederick Hoffmann, David Hays, William Neergaard, M. D., Ewen McIntyre.

The Alumni Association of the New York College of Pharmacy held its annual meeting in the lecture-room of the College, on the afternoon of March 17th, when a new constitution and by-laws were adopted, new members introduced, and the officers for the ensuing year elected. The same evening a handsome entertainment was tendered to the graduating class.

The Maryland College of Pharmacy held its twenty-third annual commencement at the Academy of Music, Baltimore, on the evening of March 23d, when the degree of Graduate in Pharmacy was conferred upon the following fourteen gentlemen: W. Christ. Sandrock, John Ayd, Walter Turpin Swentzel, Chas. Beck, Asbury McK. Snyder, Wm. F. McCauley, John G. Huck, Jr., Henry Shroeder, Dennis Davy, Albert L. Stephens, Vincent R. Jackson, Jr., Alpheus H. Roy, John M. Wiesel and George M. Bersick.

The following is a list of the theses presented by these gentlemen, arranged in the order in which their names have been given: Sulpho-carbolates; Copper and its compounds; Podophyllum peltatum; Chromium; Potassium and its compounds; Triosteum perfoliatum; Digitalis purpurea; Iodide of potassium; Thea chinensis; Mercurous and mercuric chloride; Strychnos nux vomica; Tinctures; Eucalyptus globulus, and Trillium pendulum.

Prizes consisting of valuable books were awarded to the first three graduates, and of apparatus (the Alumni prizes) to the fourth and fifth graduates of the above list. The prize to the junior class, consisting of a copy of "Pharmacographia," was awarded to Henry Deitrich.

The degree of Ph. G. was conferred by the President, John F. Hancock, and the valedictory address was delivered by Prof. Claude Baxley, M. D.

Cincinnati College of Pharmacy.—The commencement of the fourth course of lectures took place at College Hall, on the evening of March 8th, the following gentlemen receiving the degree of Graduate in Pharmacy: Theo. Bange, C. M. Greve, M. D., John Jungkind, John Keller, L. K. Marty, Albert Mente, Theo. P. Pellens, of Ohio; Henry H. Penkhaus, of Kentucky; Louis Rapp, W. J. Ratliff, John H. Rielag, Hugo Sattler, John F. Sanns, Allen Shaffer, Wm. B. Strang, John J. Winkelman and Ferd. Zuenkeler, of Ohio.

The exercises commenced with remarks by Prof. J. F. Judge, who, dwelling upon the relations of pharmacists and physicians, showed the necessity of pharmaceutical

education, and referred to the increased attendance at this college, stating, that the first regular session in 1871 had thirty-two matriculants; in 1872, there were fifty: in 1873–4, seventy-two; and for 1874–5, seventy-six.

Hon. Samuel F. Hunt next entertained the audience in a very able address on "The Science of Pharmacy; its relation to Medicine and Society at large."

After some further remarks by Prof. Judge on behalf of the faculty, Mr. N. J. Ratliff, of the graduating class, delivered the valedictory. Mr. Theo. Bange was presented with a gold medal, for standing highest at the examination; and the graduating class presented to the College a half-length oil portrait of the late Prof. W. B. Chapman, who, up to the time of his death, filled the chair of Professor of Pharmacy.

Late in the evening the Alumni, Faculty, Trustees of the College, and some invited guests, assembled at Keppler's, spending some pleasant hours at the annual banquet.

LOUISVILLE COLLEGE OF PHARMACY.—The fifth annual meeting was held in the College hall, corner Second and Jefferson streets, March 8th, for the purpose of electing directors and officers, and celebrating graduation exercises.

The following Board of Directors was elected to serve the ensuing year: C. Lewis Diehl, Vincent Davis, Wm. G. Schmidt, S. Fisher Dawes, Bernh. Bueckle, J. M. Krim, Emil Scheffer, Fred. C. Miller, John Colgan, Ferd. J. Pfingst, Wiley Rogers, J. A. McAfee.

At a meeting of the Board of Directors of the Louisville College of Pharmacy, held immediately after the adjournment of the annual meeting of the College, the following officers were elected to serve the ensuing year: President, C. Lewis Diehl; Vice-Presidents, Emil Scheffer, Vincent Davis; Recording Secretary, Fred. C. Miller; Corresponding Secretary, William G. Schmidt; Treasurer, S. Fisher Dawes; Curator, James A. McAfee.

The following young gentlemen, having been recommended by the faculty and committee, had the degree of Graduate in Pharmacy conferred upon them: Bernh. Bueckle, Albert J. Schoettlin, Emil Scheffer, Jr., and Oscar Beckman.

The graduating class was addressed by Prof. L. D. Kastenbine, who delivered an entertaining and instructive lecture "On the Origin, Rise and Progress of Chemistry."

THE ALUMNI ASSOCIATION OF THE LOUISVILLE COLLEGE OF PHARMACY was organized December 17th, 1874, and the following officers were elected for the ensuing year; President, Jno. F. Rudell; Vice-Presidents, Henry Preissler, E. D. Caldwell; Recording Secretary, Henry N. Voigt; Corresponding Secretary, Chas. P. Frick; Treasurer, Wm. Tafel; Board of Directors, Chas O. Frick, Jno. C. Loomis, Ed. E. Anderson, Phil. G. Beutel, and Chas. De Kress.

AMERICAN PHARMACEUTICAL ASSOCIATION.—The Committee on the Ebert Prize have made the following report:

"*To the President of the American Pharmaceutical Association:*

"The Committee on the Ebert Prize respectfully report that they have carefully examined the original essays presented at the Twenty-second Annual Meeting of the American Pharmaceutical Association, a number of which contain more or less valuable contributions to pharmaceutical knowledge, and that they selected for their especial consideration the papers offered by Ottmar Eberbach, of Ann Arbor, Mich.; J. Creuse, of New York, and Charles L. Mitchell, of Philadelphia, believing that these approach more nearly to the conditions laid down by the founder of the prize than the others.

"Mr. Eberbach's paper 'On Colchicia' is the result of his investigations undertaken with the view of finding a working process for preparing colchicia for medicinal purposes. The process adopted is based upon that of Geiger and Hesse, but considerably modified, and with the adoption of Dragendorff's suggestion of using chloroform for the extraction of colchicia from the alkaline solution. Since this alkaloid is repeatedly subjected to the influence of free alkali and acid, even at a

somewhat elevated temperature, it remains uncertain whether the amorphous yellow scales were pure colchicia or contained some colchiceïn. It is to be regretted that the author omitted to prove the acicular crystals finally obtained from a concentrated solution in chloroform to be pure colchicia and not colchiceïn; which latter, however, according to Hübler and Oberlin, is obtained in an amorphous condition from the chloroformic solution.

"Mr. J. Creuse's essay 'On Iron by Hydrogen' is deserving of commendation for two reasons: first, for establishing the true character of what is usually found in commerce under this name, and, second, for determining the comparative value of the different processes that have been recommended for estimating the amount of metallic iron contained in this preparation. Its quantitative estimation by the amount of hydrogen evolved in the presence of dilute muriatic acid appears to be feasible; but further experiments are necessary to determine the influence which the presence of the various oxides mentioned by the author may exert upon the amount of gas obtainable.

"The paper entitled 'The Active Principles of the Officinal Veratrums,' by Mr. Chas. L. Mitchell, is divided into three parts, entitled 'Botanical,' 'Chemical' and 'Physiological.' In the first part we miss a sufficiently critical account of the botanical origin of Sabadilla seeds; although attributed by the United States Pharmacopœia to *Veratrum Sabadilla*, Retzius, the seed, according to all modern authorities, is obtained principally, if not exclusively, from *Asagræa officinalis*, Lindley. While the close similarity in appearance and structure of the rhizomes of *Veratrum viride* and *album* is particularly dwelled upon in this part of the paper of Mr. Mitchell, the second part does not produce any evidence that it was really and solely the rhizome of the former which was used for the experiments, except what is deducible from its physiological results, in Part III, and from the slight differences in the behavior of the two alkaloids obtained—besides jervia—all reactions being essentially identical, except the fusing point, which for veratroidia is given at 265° F., and for veratralbia at 340° F., and the behavior to bichloride of platinum, with which veratralbia is stated to yield no precipitate, while veratroidia produces a flocculent precipitate; but the strength of both solutions has not been given.

"The botanical similarity of these American and European *Veratrums* had long since suggested the idea of the identity of their constituents, and this belief was strengthened by the positive proof of the absence of veratria from both, and by the physiological results of Schroff, which indicate a qualitative similarity, if not identity, of composition. The recent discovery of jervia in *Veratrum viride* by Dragendorff, which result has been corroborated by Mr. Mitchell, furnishes further proof for this assumption.

"The main results of Mr. Mitchell's investigations, as they appear to the Committee, on comparison with the results of other investigators, may be summed up as follows:

"1. The alkaloid, heretofore named viridia, is jervia, and is found in both *Veratrum album* and *V. viride*.

"2 The alkaloids named veratroidia and veratralbia are probably different, though positive proof of this fact has as yet not been adduced.

"3. These alkaloids cannot, probably, be profitably extracted for medicinal use; and,

"4. The pure resins of both rhizomes are nearly, if not entirely, inactive.

"After full deliberation upon all the above points, and considering the labor involved in the experiments of the subject matters of the three papers, the Committee award the Ebert Prize of the American Pharmaceutical Association, for the year 1874, to Mr. Charles L. Mitchell for his essay 'On the Active Principles of the Officinal *Veratrums*.'

"In conclusion, the Committee desire to state that their labors would have been very considerably lightened, if the essays in question had been accompanied by full lines of specimens.

"*Philadelphia, March 9th*, 1875."

CHAS. BULLOCK,
W. H. PILE,
JOHN M. MAISCH,
} *Committee.*

PHARMACEUTICAL SOCIETY OF PARIS.—At the monthly meeting held January 6th, M. Planchon succeeded M. Regnauld in the Presidency. Mr. Duquesnel gave an account of the labors of the society during the past few years; Mr. Méhu reported on the International Pharmaceutical Congress held last year in St. Petersburg, and M. Fr. Wurtz presented a report on the theses, in consequence of which the prize was awarded to M. Gondard, and those of MM. Verne and Aubert were noticed with commendation. Among the papers presented at this meeting may be mentioned a note from M. Patrouillard, of Gisors, reporting the substitution of senega root by the root of an *Asclepias*.

The meeting of February 3d was presided over by M. Planchon. M. Poggiale reported on a communication presented by M. Cauvet at the previous meeting in relation to the supposed rediscovery by Laval of the sylphium of ancient writers; M. Stan. Martin considered it as still unknown, and the President expressed the view that the question was still undecided.

A note by M. Schlagdenhauffen was read on the "Estimation of Arsenious Acid in the Presence of Oxide of Antimony by means of Hypochlorites."

M. Limousin exhibited and described an apparatus for dividing powders: it consists of a metallic tube, one end of which is closed by a movable plate, which can be raised and lowered to any position by means of a screw, so as to form a measure of a definite size; this measuring tube is furnished with a suitable handle. Similar contrivances have been used in the United States for many years, but have been abandoned by most pharmacists on account of the variability of the different doses thus obtained in consequence of the impossibility to regulate the pressure with exactness.

M. Méhu spoke on the enactments regulating the practice of pharmacy, and on the education of pharmacists in Russia. M. Bourgoin on the action of chlorine and bromine upon acetylen tetrabromide $C_2H_2Br_4$. M. Coulier on the spontaneous combustion of metallic arsenic (so-called cobalt) stored away in a case, the combustion being ascribed to the action of moisture. M. Duquesnel on eserina (cocaina) and its salts, the bromhydrate of which is crystalline and not deliquescent.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—At the pharmaceutical meeting held March 8th, Mr. T. H. Hills presiding, numerous donations were made to the library, museum and herbarium. Professor Bentley called attention to a most valuable collection of cinchonas, presented by Mr. Howard, and illustrating his paper on the "Cinchona Plantations of Java," published in 1873, (*see* "American Journal of Pharmacy," 1873, p. 418); the bark of *Cinchona calisaya* var. *ledgeriana* is particularly valuable, having yielded the extraordinary amount of 10 per cent. of alkaloid. Prof. Bentley also directed attention to a specimen of carnauba root, which is obtained from a palm known as *Copernicia* or *Corypha cerifera*, and which is stated to be valuable as an alterative, to have exactly the same properties as sarsaparilla, and to be obtainable at about one-half the price of the latter. Referring to spurious chiretta (*see* this Journal, p. 71), an extract from a letter by Dr. Dymock, Professor of Materia Medica at Bombay, was read, as follows:

"You are likely to get more of it, as it is very abundant in the market this year. It has been for a long time well known here as *Meetha chirata* or *sweet chiretta*. It comes in the same bales as the bitter kind, and is sorted out for sale here."

Mr. Charles Umney read a paper on "Lead Plaster," in which he referred to a paper on the same subject read by Mr. A. W. Gerrard, before the British Pharmaceutical Conference in August last, and to the discussion which then took place. Many pharmacists look upon this plaster of the "British Pharmacopœia" as being too soft and sticky, and accordingly prepare it by a modified formula, increasing the litharge. The former Pharmacopœias of London, Dublin and Edinburgh, and the present Pharmacopœias of the United States and of Continental Europe, direct an amount of litharge, varying from 50 to 56 parts to 100 parts by weight of olive oil, or of lard (Austria), or of a mixture of equal weights of oil and lard (France, Germany), while the "British Pharmacopœia" orders 4 lbs. of litharge to one imperial gallon of olive oil (about 44 parts to 100 parts by weight). The author advocates the adop-

tion of a lead plaster made with one part of litharge to two parts of olive oil as answering more the general requirements.

In the discussion which followed the reading of this paper, views were expressed by different speakers which were directly opposite each other. While some maintained that all the water and glycerin should be removed, others appeared to be in favor of leaving the glycerin in the plaster. While some advocated the complete saponification of the fat, others favored a slight excess of the latter, which would keep the plaster pliable for years; but the liability of such a plaster to become rancid was mentioned, whereby it is rendered unfit for use in the preparation of neutral cerate. It was stated, upon the authority of Mr. Squire, as expressed in his "Companion to the British Pharmacopœia," that the plaster answered only when made with the best Italian olive oil, and that it was not satisfactory if Gallipoli or Spanish oil was used; the experience of others did not seem to coincide with this. The importance of using a good quality of litharge was referred to as being essential for obtaining a good plaster with even the best olive oil. The subject was deemed of importance so as to invite to further experiments, and to the collection of other observations.

A paper on "The Estimation of Fat in Milk" was read by Mr. E. L. Cleaver. The processes most generally used were briefly described and commented upon, leading the author to the following conclusions:

1. Cold ether will not dissolve out the entire amount of fat from dry milk residues.

2. Boiling ether will not dissolve out the entire amount of fat from milk residues in a pasty condition.

3. The residues should be in a state of fine powder, and must be gently boiled three or four times with successive portions of ether, in order to thoroughly extract the fat; the ether being always passed through a small filter before evaporating.

4. During evaporation care should be taken not to allow the ether to enter into ebullition.

The author's process may be briefly stated as follows: 10 grams (or C. C.) of milk are evaporated in a small dish to complete dryness, constantly stirring so as to obtain a fine powder. This is transferred to a long, narrow tube, the dish being rinsed with ether, and sufficient ether is added into the tube, the upper portion of which is wrapped with a piece of damp cloth, and the lower end dipped into a water-bath, a gentle ebullition being maintained by regulating the pressure by the thumb of the operator being placed upon the orifice; the ether solution is poured through a filter, the operation repeated three or four times, the filter washed with some ether, and the filtrate evaporated by a current of air from a bellows or foot-blower, completing it over a water-bath, when the fat may be weighed.

Mr. Urwick called attention to the difference of quality between specimens of milk taken from different depths in the can, after the milk had been standing for an hour or two.

Professor Redwood described the method generally followed in England, and which is a modification of Wanklyn's process. A carefully tared and well glazed hemispherical German dish is marked with its correct weight; in it the milk is evaporated to complete dryness, stirring well with a glass rod rounded at both ends, so as to reduce the residue into a perfectly fine granular condition, when the dish, with the residue, is weighed. The residue is exhausted with four successive portions of ether, the dish being placed upon the water-bath, but care being taken to avoid boiling the ether; the contents are well stirred, and any larger particles of the solid residue are broken down with the glass rod. The residue subsides with great facility and very quickly, and the clear ether solution is poured into a beaker in order to observe that no solid particles have been decanted. The dish is then dried by heat and weighed, the loss sustained by the treatment with ether indicating the weight of the fat, and by deducting the tare of the dish from the last weighing, the amount of non-fatty solid residue is obtained. The ether solution is poured into a bottle and when sufficient has accumulated, the ether is recovered by distillation. The advantages of this process are, that a number of assays may be undertaken at the same time, the residue is not removed from the dish during the operation, filtration is

avoided and the ether may be recovered. The specific gravity of the milk is taken before the process is commenced, and if there is any doubt as to the milk being genuine the ash is determined by transferring the non-fatty solid residue into a platinum dish, calcining and weighing; the ash is then treated with distilled water and the amount of chlorine dissolved therein determined.

EDITORIAL DEPARTMENT.

THE STAMP TAX ON MEDICINES.—On page 137 of our March number we have printed the twenty-second section of the so-called "Little Tariff Bill," which relates to the stamping of medicines, and explained our views regarding the intention of the law, which we are pleased to observe are essentially the same as those of the Philadelphia Drug Exchange, published on page 7 of their Circular No. 26. On a careful perusal of that section, it is quite evident that the law never contemplated that the formulas which have been published in any standard Dispensatory or Pharmacopœia in common use, or in any pharmaceutical journal published by any incorporated college of pharmacy, should be reproduced upon the label. All that is necessary, according to the law, is that the formula thus published shall be distinctly referred to, as regards the precise place where it is to be found. The Internal Revenue Commissioner, however, has seen fit to interpret it in an entirely different manner, which we believe is neither warranted by the wording or by the intention of the law, as will be seen by the following, which we find in the Circular above referred to:

"The Commissioner of Internal Revenue has decided, with reference to the tax upon medicines under the law of February 8, 1875, that two classes heretofore held to be liable to stamp tax are conditionally exempted:

"1st. Officinal medicines, or medicines made and compounded according to formulas published in authorized standard medical authorities, but which have been heretofore put up in a style or manner similar to that of patent or proprietary medicines in general.

"2d. Medicines unofficinal, or made and compounded according to unpublished formulas. In the first of these cases the condition on which the exemption is made to depend is that *the formula shall be published on the label*, and the Dispensatory, Pharmacopœia, or pharmaceutical journal, or other standard medical authority where such formula is published, shall be distinctly referred to on the label. In the second case, no proprietorship shall be claimed, and to remove all semblance of any claim to proprietorship, or claim to have any private formula, or occult secret or art of making and preparing the same, the maker or compounder must publish on his label the exact formula which he uses, so that the medicinal article may be free and open to the trade, if they see fit to make or compound the same article. The formulas, *in all cases*, must be published in form and manner, and indicated by such weights and measures as are generally adopted in the standard medical authorities."

The Commissioner is correct in regard to the two classes of medicines which are exempt from the stamp tax; but he has erred in the few words which we have italicized. The law states, very distinctly, that when a formula has been published in certain works, it shall be accurately *referred to*. It is not necessary, according to the law, to print upon the label the entire formula by which "Seidlitz Powders" are made; a reference to the place, however, where the formula may be found is necessary, and the label should therefore read: "Seidlitz Powders. 'U. S. Pharmacopœia,' 1873, p. 259. Directions:" &c.

It is very probable that the Internal Revenue Commissioner will modify his ruling as soon as his attention is drawn to the subject, and we are glad to state that the Philadelphia Drug Exchange will address this officer in relation to his peculiar modification of the law. It would, however, be well if other pharmaceutical bodies would take the same steps, so as to convince the Commissioner that pharmacists are quite willing to comply with this law in letter and in spirit.

In this connection we deem it proper to state that we have received several communications requesting us to publish certain formulas. While we invite contributions of this kind, as well as others of interest to the profession, it is but proper that we should reserve to us the right to judge of their admissibility into this "Journal." We cannot undertake to publish formulas merely for the purpose of relieving those dealing in medicines from stamping them; every apothecary and druggist can accomplish the same object by having the correct formula printed upon the label.